

COMPREHENSIVE GUIDE TO

Google NotebookLM

For Educators, Researchers, and Students

From Prompting Principles to Advanced Studio Customization
A Practical, Screenshot-Rich Reference Guide

Dr. Zaid Al-Huda

March 2026
First Edition

ABOUT THE AUTHOR

Dr. Zaid Al-Huda

Senior Lecturer & Distinguished Associate Research Fellow · Stirling College, Chengdu University (CDU)

Dr. Zaid Al-Huda is an AI researcher and Senior Lecturer at Stirling College, Chengdu University (CDU) - an international academic partnership between the University of Stirling (UK) and Chengdu University (China). He holds a Ph.D. in Computer Science and Technology from Southwest Jiaotong University (China, 2021), an M.Tech. in Artificial Intelligence from the University of Hyderabad (India, 2015), and a B.Sc. in Computer Engineering from Aleppo University (Syria, 2011).

His research addresses critical challenges at the intersection of Computer Vision, Explainable AI (XAI), and Deep Learning - with a particular focus on image segmentation, infrastructure inspection automation, and medical image analysis. He has developed novel multi-scale segmentation architectures and hybrid deep learning frameworks that achieve robust performance with minimal labelled data, bridging advanced AI methodologies with real-world applications in infrastructure monitoring and clinical diagnostics.

Dr. Zaid has served as Principal Investigator on China's National Foreign Experts Programme (Ministry of Science and Technology) and Co-Principal Investigator on a Sichuan Natural Science Foundation project. He holds three granted patents in AI-driven infrastructure inspection and deep learning-based segmentation (China and South Korea). He has been officially recognized as a **Sichuan High-level Foreign Talent** by the Science and Technology Department of Sichuan Province - reflecting his sustained contributions to research and innovation in the region.

This guide was written as a practitioner's companion - shaped by Dr. Zaid's direct experience using AI tools in research workflows. Every chapter is built around a single principle: the default settings are just the starting point. With the right custom instructions and prompting strategies, NotebookLM can become a genuinely powerful assistant for educators, researchers, and students alike.

Contact Information

Website	https://zaidalhuda.github.io/
Email	zaid@stir.cdu.edu.cn zh6@stir.ac.uk
Google Scholar	scholar.google.com/citations?user=ZTvKDLAAAAAJ
LinkedIn	linkedin.com/in/zaidal-huda

TABLE OF CONTENTS

About This Guide

This guide is organised into eight parts spanning 13 chapters, plus five appendices. Parts I–II cover foundations and getting started. Parts III–VI explore advanced customization, Studio tools, and learning features. Part VII delivers audience-specific applications for teachers, researchers, and students. Part VIII addresses best practices, limitations, and ethics.

Introduction	1
---------------------------	----------

PART I: FOUNDATIONS

Chapter 1: Introduction to NotebookLM	4
1.1 What is NotebookLM and Why It Matters	4
1.2 How It Differs from ChatGPT, Gemini, Claude, and Perplexity	4
1.3 The Source-Grounded Approach (Retrieval Augmented Generation)	5
1.4 Privacy and Data Policy	6
1.5 Free Tier vs. Paid Plans (Plus & Pro)	6
1.6 The Three Pillars: Sources, Chat, and Studio	7
1.7 Interface Overview	8
Chapter 2: The Art of Prompting - From General Principles to NotebookLM Mastery .	11
Section A: General AI Prompting Principles	12
2.1.1 Zero-Shot Prompting: The Foundation	12
2.1.2 Chain-of-Thought (CoT) Prompting: Unlocking Reasoning	13
2.1.3 Few-Shot Prompting: Learning by Example	14
2.1.4 Iterative Prompting: The Refinement Cycle	15
2.1.5 Negative Prompting: Steering by Exclusion.....	16
Section B: Prompting Specifically in NotebookLM.....	16
2.2.1 The 10,000-Character Custom Prompt Field.....	17
2.2.2 Steering Prompts for Audio Overviews and Studio Features	18
2.2.3 Building Your Prompt Template Library	20
2.2.4 Advanced Prompting Techniques for Power Users	21
2.2.5 Before and After: The Impact of Effective Prompting	22

PART II: GETTING STARTED

Chapter 3: Sources - The Foundation of Everything	25
3.1 What Are Sources? Understanding the Core Concept.....	26
3.2 Supported Source Types	26
3.3 Adding Sources to Your Notebook	28
3.4 Source Limits and Constraints	32
3.5 Managing Your Sources	33
3.6 Source Quality and Best Practices	35

3.7 Common Source Issues and Solutions	36
Chapter 4: The Chat Panel - Your AI Research Companion.....	38
4.1 Understanding the Chat Panel Interface	38
4.2 The October 2025 Engine Upgrade.....	40
4.3 Configuring Chat Behaviour: Default, Learning Guide, and Custom.....	41
4.4 Source Selection and Focus States.....	44
4.5 Working with Citations and Saving Responses	46
4.6 Advanced Chat Features	47
4.7 Effective Chat Strategies	48
4.8 Common Use Cases and Applications	50
4.9 Limitations and Best Practices.....	51
PART III: CUSTOMISATION - BEYOND DEFAULT SETTINGS	
Chapter 5: Custom Goals, Personas, and Style Settings.....	54
5.1 Understanding Customization: Why Default Settings Aren't Enough	54
5.2 Accessing Customization Settings.....	56
5.3 Preset Styles: Analyst and Guide (Plus Only)	58
5.4 Custom Instructions: Creating Powerful Personas	60
5.5 Response Length Control	65
5.6 Practical Workflow: Customizing a Notebook from Scratch	66
5.7 Advanced Considerations and Limitations	70
PART IV: THE STUDIO PANEL	
Chapter 6: Audio and Video Overviews - Custom Instructions in Depth	73
6.1 Understanding Audio Overviews	73
6.2 Format Options: Deep Dive, Brief, Critique, and Debate	75
6.3 Custom Instructions: The 10,000-Character Field.....	76
6.4 Language, Length, and Interactive Mode	79
6.5 Advanced Audio Techniques	80
6.6 Understanding Video Overviews	82
6.7 Format and Visual Style Options	83
6.8 Custom Instructions for Video.....	85
6.9 Nano Banana and Custom Visual Styles.....	86
6.10 Video Best Practices.....	88
Chapter 7: Mind Maps, Reports, Infographics, and Slide Decks	89
7.1 Understanding Mind Maps in NotebookLM	91
7.2 Generating and Using Mind Maps	92
7.3 Practical Applications Across Disciplines	93
7.4 Strategic Source Selection for Mind Maps	94
7.5 Exporting and Sharing Mind Maps.....	94
7.6 Report Types and Formats	95
7.7 Crafting Effective Custom Report Prompts.....	97
7.8 Exporting and Using Reports	99
7.9 Infographics - Data Visualization Made Simple	99
7.10 Slide Decks - Audience-Aware Presentations	102
PART V: LEARNING TOOLS	
Chapter 8: Flashcards, Quizzes, and Data Tables	109
8.1 Flashcards: From Memorization to Application	109
8.2 Quizzes: Testing Comprehension and Synthesis.....	113
8.3 Data Tables: Transforming Scattered Information into Structure	117

8.4 Integrated Learning Systems: Combining Tools Strategically	122
8.5 Advanced Considerations and Limitations	124
8.6 Real-World Learning Scenarios	125

PART VI: COLLABORATION AND SHARING

Chapter 9: Sharing, Public Notebooks, and Analytics	129
9.1 Private Sharing Fundamentals	129
9.2 Public Notebooks	132
9.3 Featured Notebooks	135
9.4 Usage Analytics	137
9.5 Collaboration Workflows and Best Practices	139

PART VII: PRACTICAL APPLICATIONS

Chapter 10: NotebookLM for Teachers	141
10.1 Why NotebookLM Transforms Teaching Practice	142
10.2 Course Planning and Learning Outcome Alignment	143
10.3 Creating Differentiated Materials	144
10.4 Assessment Design and Formative Evaluation	148
10.5 Student Communication and Engagement	149
10.6 Professional Development and Course Team Collaboration	150
10.7 Learning Management System Integration	151
10.8 Time-Saving Workflows: Strategic Implementation	152
10.9 Ethical Considerations and Professional Responsibility	153
Chapter 11: NotebookLM for Researchers	155
11.1 Setting Up a Research Notebook: Source Curation and Organization	157
11.2 Systematic Cross-Source Analysis: Patterns, Contradictions, and Gaps	160
11.3 Generating Thematic Synthesis Reports and Mind Maps for Gap Analysis	163
11.4 Prompts for Methodological Critique, Comparison, and Analysis	165
11.5 Theoretical Framework Mapping and Trend Identification	167
11.6 Before/After Examples: Generic vs. Expert-Level Research Prompts	169
11.7 Generating Annotated Bibliographies, Briefing Documents, and Literature Summaries	171
11.8 Custom Personas for Research: Advisor, Peer Reviewer, Devil's Advocate	173
11.9 Combining NotebookLM with Research Tools: Zotero, Litmaps, Consensus	176
11.10 Verification and Citation Integrity	179
11.11 Navigating Publisher and Institutional AI Policies	181
11.12 Ethical Framework for AI-Assisted Research	183
Chapter 12: NotebookLM for Students	188
12.1 Setting Up Your Academic Workspace	189
12.2 Active Study and Exam Preparation	191
12.3 Reading Comprehension and Deep Understanding	195
12.4 Academic Writing Support	196
12.5 Collaborative Study and Group Projects	198
12.6 Advanced Prompting Strategies for Students	199
12.7 Ethical Use and Academic Integrity	201

PART VIII: BEST PRACTICES AND LIMITATIONS

Chapter 13: Tips, Limitations, and Ethical Considerations	205
13.1 Power-User Tips and Strategies	205
13.2 Understanding NotebookLM's Current Limitations	207
13.3 Ethical Considerations for Academic and Research Use	211
13.4 Building a Responsible AI Use Framework	215

13.5 Looking Ahead: The Evolving Landscape217

APPENDICES

Appendix A: Prompt Templates Library 220
Appendix B: NotebookLM Plan Comparison 226
Appendix C: Troubleshooting Guide 230
Appendix D: Glossary of Key Terms 236
Appendix E: Quick-Start Cheat Sheet..... 239

Introduction

Why This Guide?

Artificial intelligence is rapidly transforming the landscape of education and research. Among the growing array of AI tools available, Google NotebookLM stands out as a uniquely powerful platform - one that is purpose-built for the way teachers teach, researchers investigate, and students learn. Yet despite its remarkable capabilities, many educators and scholars continue to use NotebookLM at a fraction of its potential, relying on default settings and surface-level interactions.

This guide was written to change that. It is designed to take you from a basic understanding of NotebookLM to a level of mastery where you can customize every aspect of the tool - from crafting precise prompts that yield exactly the outputs you need, to configuring custom personas that transform how the AI interacts with your materials, to using the Studio panel's full suite of audio, video, mind map, and report generation tools with expert-level steering instructions.

Who Is This Guide For?

This guide serves three primary audiences, each with distinct needs:

Teachers and Educators who want to integrate AI meaningfully into their teaching practice - creating course materials, audio lectures, quiz banks, and interactive study resources grounded in their own curated content. Whether you teach in a traditional classroom, a transnational education setting, or an online environment, this guide provides practical workflows you can adopt immediately.

Researchers and Academics who need to analyze large collections of papers, synthesize findings across sources, identify gaps in the literature, and produce grounded reports - all while maintaining citation integrity. This audience receives the deepest treatment in this guide, with an extended chapter (Chapter 11) dedicated to advanced research workflows, prompt strategies, and integration with other academic tools.

Students who want to study more effectively using AI-generated summaries, mind maps, audio overviews, flashcards, and quizzes - all derived from their actual course materials rather than generic internet content. This guide teaches responsible AI use alongside practical study techniques.

How to Use This Guide

The guide is structured in eight parts, progressing from foundational concepts to advanced, audience-specific applications. You do not need to read it cover to cover - though doing so will give you the most complete understanding. Here is how to navigate it based on your needs:

If you are new to NotebookLM: Start with Part I (Chapters 1-2) to understand the tool and master prompting, then proceed through Parts II-IV sequentially.

If you already use NotebookLM but want to go beyond defaults: Jump directly to Part III (Chapter 5: Custom Goals and Personas) and Part IV (Chapters 6-7: Studio customization).

If you want audience-specific workflows: Go to Part VII-Chapter 10 for teachers, Chapter 11 for researchers, or Chapter 12 for students.

If you need quick-reference prompts: Turn to Appendix A for a curated library of ready-to-use prompt templates organised by audience and use case.

Throughout the guide, you will find screenshot placeholders indicating where visual references will be inserted, color-coded callout boxes (tips in blue, notes in green, warnings in yellow), and practical examples with step-by-step instructions. The goal is not simply to describe what NotebookLM can do, but to show you exactly how to do it - and how to do it well.

A Note on Prompting

One of the central themes of this guide is that prompting is a skill, not a trivial act of typing a question. Chapter 2 is dedicated entirely to this topic, covering both general AI prompting principles (chain-of-thought reasoning, few-shot examples, iterative refinement) and NotebookLM-specific strategies. We believe that mastering prompting is the single highest-leverage skill for getting exceptional results from NotebookLM or indeed from any AI tool. The prompting chapter draws on Google's own recommendations as well as community-tested strategies refined over the past year.

Whether you are writing a steering prompt for an Audio Overview, configuring a custom persona for your research notebook, or simply asking a question in the chat panel, the principles in Chapter 2 will serve you throughout every subsequent chapter of this guide.

PART I: FOUNDATIONS

Chapter 1: Introduction to NotebookLM

LEARNING OBJECTIVES

By the end of this chapter, you will be able to:

1. Explain what NotebookLM is and how its source-grounded approach differs from general-purpose AI tools.
2. Identify the key differences between NotebookLM and other AI tools such as ChatGPT, Gemini, and Claude.
3. Understand NotebookLM's privacy model and data handling policies.
4. Distinguish between the Free tier and NotebookLM Plus features.
5. Navigate the three core pillars of NotebookLM: Sources, Chat, and Studio.

1.1 What is NotebookLM and Why It Matters

Google NotebookLM is an AI-powered research and note-taking tool developed by Google DeepMind. Originally launched as “Project Tailwind,” it has evolved into one of the most powerful free AI tools available in 2025. Unlike conventional AI chatbots that draw on vast, generic training data, NotebookLM is built around a fundamentally different philosophy: it works exclusively with the sources you provide.

Think of NotebookLM as a personalized AI research assistant. You upload your documents - research papers, lecture notes, reports, YouTube videos, web pages - and NotebookLM builds a custom language model around that specific collection. Every response it generates is grounded in your materials, with inline citations pointing back to exact passages in your sources.

This source-grounded approach has profound implications for educators, researchers, and students. It means that NotebookLM does not “hallucinate” or fabricate information from its general training data. When it answers your question, it draws only from what you have given it, and it tells you exactly where each claim comes from.

NOTE

NotebookLM is powered by Google's Gemini models (currently Gemini 2.5 Flash). It uses Retrieval Augmented Generation (RAG), which means it retrieves relevant passages from your uploaded sources and uses them to generate grounded, cited responses. We explain RAG in more detail in the Glossary (Appendix D).

1.2 How It Differs from ChatGPT, Gemini, Claude, and Perplexity

To understand what makes NotebookLM unique, it helps to compare it with the AI tools many readers already use. The following table highlights the key distinctions:

Feature	NotebookLM	ChatGPT / Claude	Perplexity
Knowledge Source	Only your uploaded documents	General training data + optional uploads	Web search + training data
Hallucination Risk	Very low (source-grounded)	Moderate to high	Low (web-cited)
Citations	Inline, linked to source passages	Optional, often absent	Web URLs provided
Multimodal Outputs	Audio, Video, Mind Maps, Reports, Infographics, Slides	Text, images, code	Text, web results
Privacy	Data not used for training	Varies by plan and provider	Varies by plan
Best For	Deep analysis of your own materials	General knowledge, coding, creative writing	Quick web research
Cost	Free (Plus available)	Free tiers + paid plans	Free tiers + paid plans

The critical distinction is this: ChatGPT, Claude, and Gemini are “wise experts” who know about the entire internet but may get specific details wrong. NotebookLM is a “dedicated specialist” who knows only what you have given it, but knows it deeply and can always show its sources.

For researchers conducting literature reviews, this means every synthesis NotebookLM produces can be verified against the original papers. For teachers creating course materials, it means the AI will not introduce content beyond the approved readings. For students studying for exams, it means every answer traces back to their actual study materials.

1.3 The Source-Grounded Approach (Retrieval Augmented Generation)

At the heart of NotebookLM lies a technique called Retrieval Augmented Generation (RAG). Understanding this concept, even at a high level, will help you use the tool more effectively.

When you ask NotebookLM a question, it does not simply generate an answer from its general knowledge. Instead, it follows a two-step process. First, it searches through your uploaded sources to find the most relevant passages, quotes, and data points. Second, it uses those retrieved passages as context to generate a grounded, cited response. This means NotebookLM’s answers are constrained by your sources, which dramatically reduces the risk of fabrication.

TIP

Because NotebookLM uses RAG, the quality of your outputs depends heavily on the quality and relevance of your sources. A well-curated collection of 15–20 highly relevant papers will produce better results than 50 loosely related documents. Chapter 3 covers source curation strategies in detail.

There is an important implication: NotebookLM cannot search the internet or access information beyond your uploaded sources during a chat session. If you ask about something not covered in your sources, it will tell you so. This is a feature, not a limitation, it ensures that every response is traceable and verifiable.

WARNING

While NotebookLM's source-grounded approach greatly reduces hallucination, it does not eliminate it entirely. Always verify critical claims by clicking the inline citations and reading the original source passages. Google explicitly states that NotebookLM can be inaccurate and recommends double-checking its responses.

1.4 Privacy and Data Policy

Data privacy is a significant concern when using AI tools in academic and professional settings. NotebookLM addresses this directly with a clear privacy commitment: your uploaded sources, queries, and model responses are not used to train Google's AI models.

This applies to personal accounts, NotebookLM Plus, and Google Workspace editions. Your data remains within your organization's trust boundary. This privacy-first approach makes NotebookLM suitable for working with sensitive research data, internal institutional documents, and student materials, contexts where data leakage to training pipelines would be unacceptable.

Shared notebooks have an additional privacy layer: your personal chat history remains visible only to you, even in notebooks shared with collaborators. You can delete your chat history at any time.

NOTE

For institutions requiring enterprise-grade controls, NotebookLM Enterprise and a management API have reached general availability (GA). Administrators can manage access and enforce organizational policies. Check Google's Workspace documentation for the latest details on admin controls.

1.5 Free Tier vs. Paid Plans (Plus & Pro)

NotebookLM offers a generous Free tier that is sufficient for most individual users, including students and many researchers. However, for power users who need to analyze larger libraries of documents or require higher daily limits, Google offers two paid subscription tiers: NotebookLM Plus (ideal for students and light researchers) and NotebookLM Pro (designed for heavy academic or professional use).

The paid tiers are typically available through Google AI Premium subscriptions or Workspace add-ons. Here is how they compare:

💡 TIP

Most students will find the Free tier sufficient. However, for PhD candidates or researchers conducting extensive literature reviews, we strongly recommend NotebookLM Pro. The ability to upload 300 sources into a single notebook is a game-changer for synthesizing vast amounts of literature, whereas the Plus tier's 100-source limit may still feel restrictive for large-scale projects.

Feature	Free Tier	NotebookLM Plus	NotebookLM Pro
Notebooks	Up to 100	Up to 200	Up to 500
Sources per Notebook	Up to 50	Up to 100	Up to 300
File Size Limit	200 MB / 500k words	200 MB / 500k words	200 MB / 500k words
Chat Queries	50 per day	~100 per day (2x)	500 per day (5x)
Audio/Video Overviews	3 per day	~6 per day	Up to 20 per day
Chat-Only Sharing	Not available	Available	Available
Notebook Analytics	Not available	Basic	Advanced
Context Window	1 million tokens	1 million tokens	1 million tokens

1.6 The Three Pillars: Sources, Chat, and Studio

NotebookLM's interface is organized around three core areas that work together as an integrated workflow. Understanding this architecture is essential before diving into any specific feature.

Sources (Left Panel): This is where you upload and manage your materials. Sources are the foundation, everything else in NotebookLM draws from them. You can add PDFs, Google Docs, Google Slides, Google Sheets, URLs, YouTube videos, audio files, and pasted text. Each source gets an auto-generated summary (called a Source Guide) that helps you quickly understand what it contains. You can select or deselect individual sources to control which materials the AI references for any given query.

Chat (Center Panel): This is your conversational interface with the AI. You can ask questions, request summaries, explore connections between sources, and generate notes, all with inline citations. The chat panel now supports a 1-million-token context window, saved conversation history, and custom goals/personas that shape how the AI responds. NotebookLM also suggests relevant questions as you add sources, helping you discover angles you might not have considered.

Studio (Right Panel): This is your content creation hub. Studio contains four main tiles - Audio Overviews, Video Overviews, Mind Maps, and Reports - plus additional outputs like infographics, slide decks, flashcards, quizzes, and data tables. Each

Studio output is generated from your sources and can be customized with steering prompts. You can create and store multiple outputs of the same type in a single notebook, and multitask within Studio (for example, listening to an Audio Overview while exploring a Mind Map).

TIP

A powerful workflow pattern: start with Sources to build your knowledge base, use Chat to explore and understand your materials, then use Studio to create shareable outputs. We will explore this workflow in depth throughout the guide.

1.7 Interface Overview

Let us walk through the key interface elements you will encounter when you first open NotebookLM.

Getting started: Navigate to notebooklm.google.com and sign in with your Google account. You will see your home screen displaying existing notebooks and a button to create a new one. NotebookLM is also available as a mobile app on iOS and Android, supporting one-tap content saving via the share button.

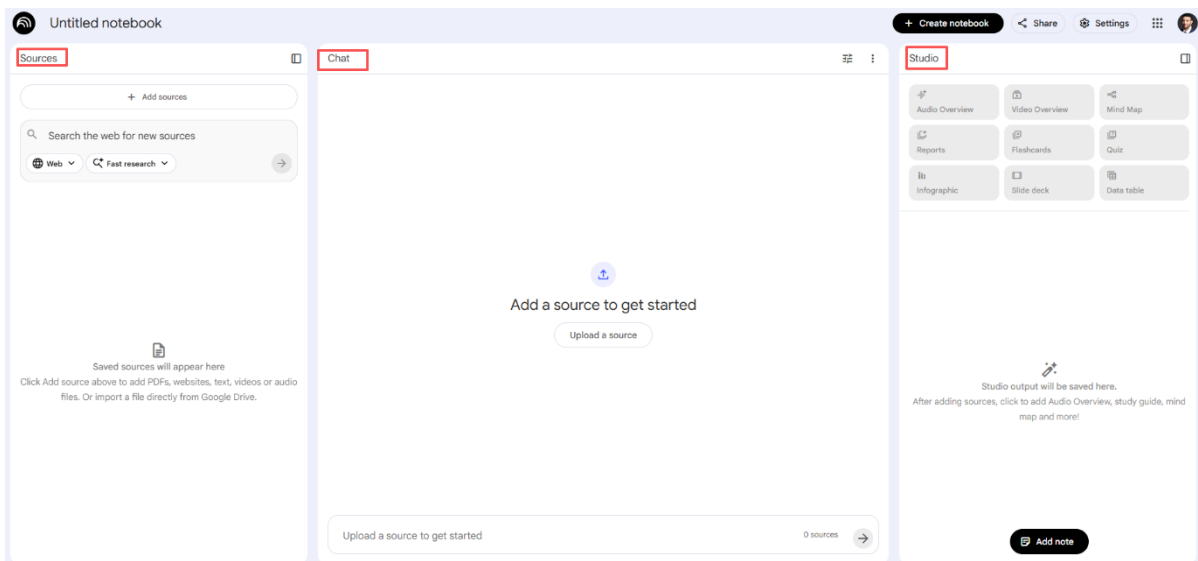


Figure 1.1: The NotebookLM interface showing the three pillars, Sources (left), Chat (center), and Studio (right)

Creating a notebook: Click “Create New Notebook” or the “+” button. You will be prompted to add sources. Each notebook is essentially a self-contained project - think of it as a dedicated workspace for a specific course, research topic, or project.

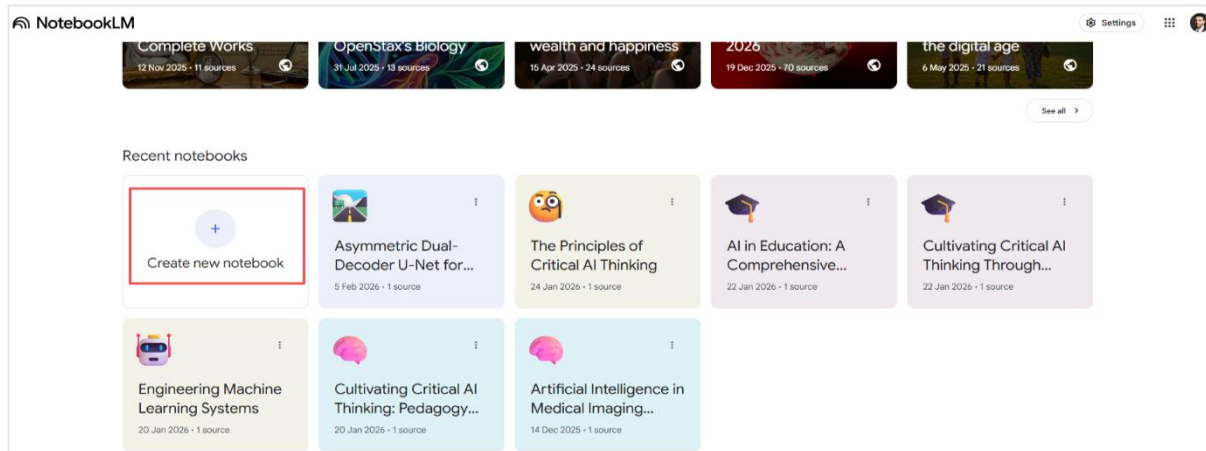


Figure 1.2: NotebookLM home screen showing existing notebooks and the “New Notebook” button

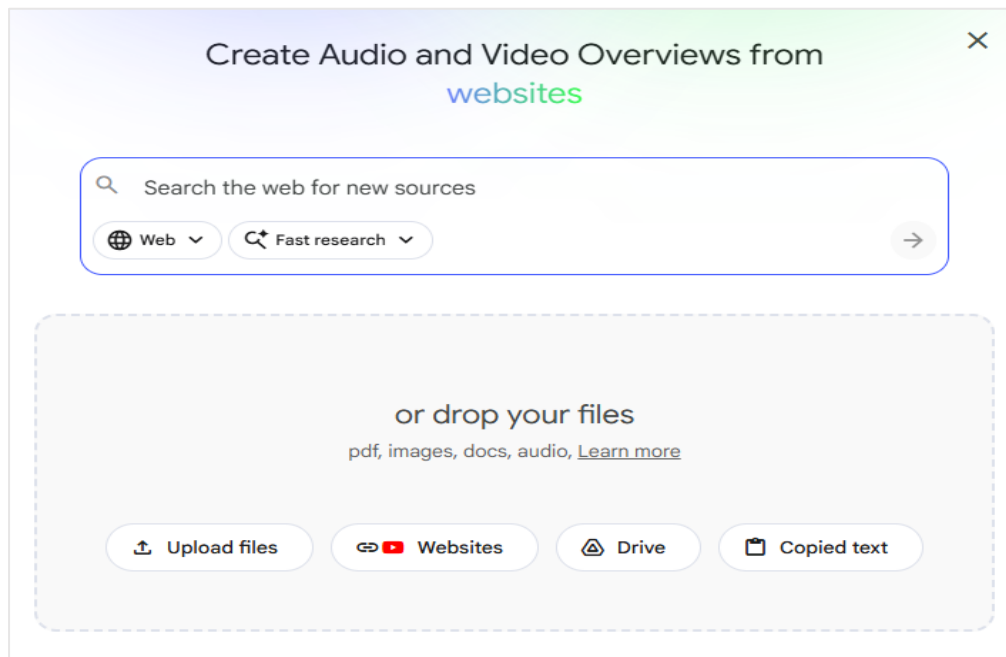


Figure 1.3: The “Add Sources” panel showing upload options (Google Drive, Upload file, Website, YouTube, Copy & Paste)

The configuration gear icon: In the chat panel, you will see a gear/configure icon. This is where you set Custom Goals and Personas for your notebook, a feature we cover extensively in Chapter 5. This is the key to moving beyond NotebookLM’s default behavior.

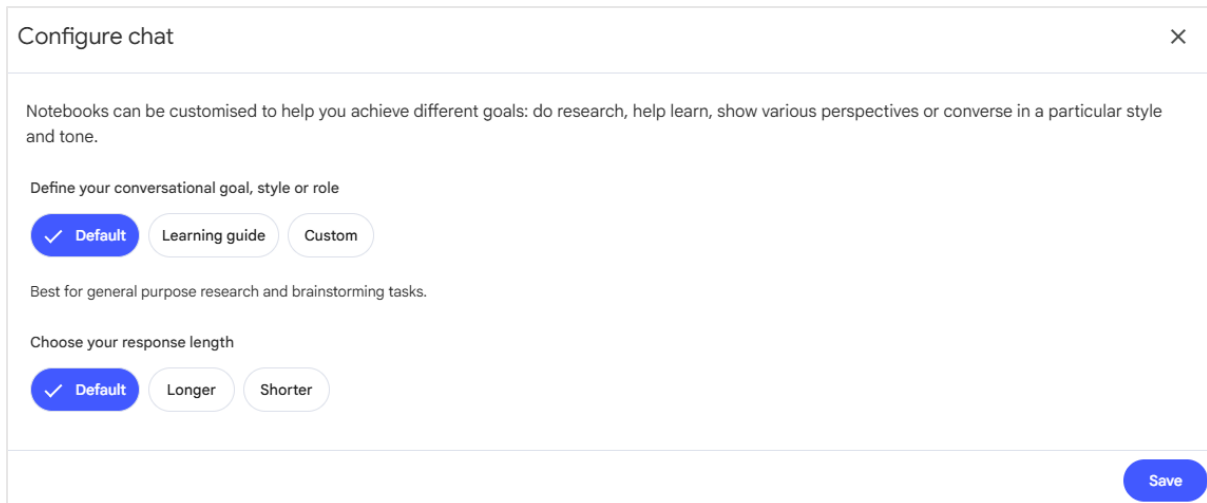


Figure 1.4: The configuration/gear icon in the chat panel for setting Custom Goals

The Studio panel tiles: On the right side of the screen, you will see the four Studio tiles: Audio Overview, Video Overview, Mind Map, and Report. Each tile has a pencil/edit icon that opens the customization panel where you can write steering prompts, select formats, and choose languages. This is covered in Chapters 6 and 7.

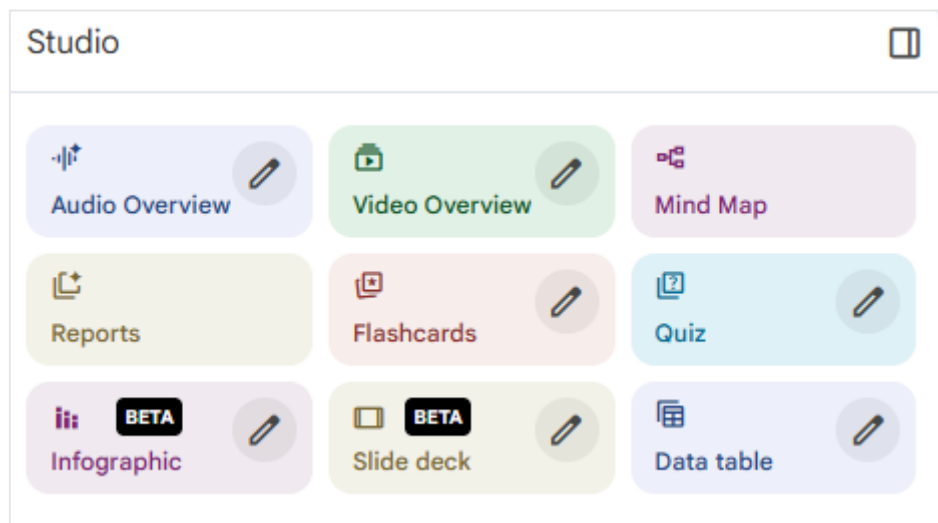


Figure 1.5: The Studio panel showing the four main tiles, Audio Overview, Video Overview, Mind Map, and Report

Featured and public notebooks: On the home screen, you may also see a “Featured” tab showcasing public notebooks created by other users and organizations. These are excellent learning resources, explore them to see how others structure their notebooks and what kinds of outputs they create.

☑ KEY TAKEAWAYS

1. NotebookLM is a source-grounded AI tool that works exclusively with your uploaded materials, providing cited responses that can be verified against original sources.
2. Unlike ChatGPT, Claude, or Perplexity, NotebookLM does not draw on general internet knowledge, this dramatically reduces hallucination but means the quality of outputs depends on the quality of your sources.
3. Your data is not used to train Google's models, making NotebookLM suitable for sensitive academic and institutional materials.
4. The free tier is powerful enough for most users. Plus adds higher limits, Chat-Only sharing, and analytics.
5. The three pillars, Sources, Chat, and Studio, form an integrated workflow: curate sources, explore via chat, then create shareable outputs in Studio.

In the next chapter, we turn to the most critical skill for getting the best results from NotebookLM: the art of prompting. We begin with general AI prompting principles, chain-of-thought, few-shot examples, iterative refinement, and then show how these principles apply specifically within NotebookLM's source-grounded environment.

PART I: FOUNDATIONS

Chapter 2: The Art of Prompting - From General Principles to NotebookLM Mastery

Effective prompting is the cornerstone of productive AI interaction. Whether you're working with general-purpose language models or specialized tools like NotebookLM, the quality of your prompts directly determines the quality of your outputs. This chapter bridges general AI prompting principles with NotebookLM-specific techniques, equipping you with a versatile toolkit that transcends any single platform.

🎯 LEARNING OBJECTIVES

By the end of this chapter, you will be able to:

1. Master foundational prompting techniques (zero-shot, few-shot, chain-of-thought) that apply across all AI platforms
2. Understand when to use each prompting strategy and how to combine them for optimal results
3. Harness NotebookLM's 10,000-character custom prompt field to create powerful, specialized AI assistants
4. Develop reusable prompt templates for common academic and professional tasks
5. Apply iterative refinement strategies to transform mediocre prompts into exceptional ones

2.1 Section A: General AI Prompting Principles

Before diving into NotebookLM's specific features, we must establish a solid foundation in general prompting techniques. These principles work across virtually all large language models (LLMs), from ChatGPT and Claude to Gemini and beyond. Understanding these fundamentals will make you a more effective communicator with AI, regardless of the platform.

2.1.1 Zero-Shot Prompting: The Foundation


Zero-shot prompting is the simplest approach: you provide instructions without any examples, relying entirely on the model's pre-trained knowledge and natural language understanding. This technique is remarkably effective for straightforward tasks where the desired output format is obvious.

When to Use Zero-Shot Prompting:

- Simple, well-defined tasks (e.g., 'Summarize this article in three sentences')
- Tasks the model has likely encountered frequently during training
- When you need quick results without fine-tuning

- General knowledge queries

Example:

 **Zero-Shot Prompt**

Translate the following sentence into French: 'Artificial intelligence is transforming education.'

This works because translation is a common task in the model's training data. However, zero-shot prompting often struggles with:

- Complex reasoning tasks requiring multiple steps
- Tasks requiring specific formatting or style conventions
- Domain-specific tasks with unusual requirements
- Nuanced tasks where the 'correct' approach isn't immediately obvious

 **TIP**

Recent research (Kojima et al., 2022) shows that adding 'Let's think step by step' to zero-shot prompts can dramatically improve performance on reasoning tasks. This simple addition triggers what researchers call *Zero-Shot Chain-of-Thought* (Zero-Shot CoT), which we'll explore next.

2.1.2 Chain-of-Thought (CoT) Prompting: Unlocking Reasoning

Chain-of-Thought prompting encourages the model to show its reasoning process, breaking down complex problems into intermediate steps. This technique emerged from research by Wei et al. (2022) and has become fundamental to modern prompt engineering.

The Two Flavours of CoT:

Technique	How It Works	Best For
Zero-Shot CoT	Add 'Let's think step by step' (or similar) to prompt	Quick reasoning tasks; modern strong models
Few-Shot CoT	Provide examples with explicit reasoning steps	Format enforcement; domain-specific reasoning; older models

Zero-Shot CoT Example:

 **Zero-Shot CoT Prompt**

Problem: A researcher has 15 papers in their notebook. They upload 4 more batches of papers, with 6 papers in each batch. How many papers are in the notebook now?

Let's think step by step.

The model typically responds with a step-by-step breakdown:

Model Response

1. Initial papers: 15
2. Papers from new batches: 4 batches × 6 papers/batch = 24 papers
3. Total papers: 15 + 24 = 39 papers

Answer: 39 papers

NOTE

Recent Research Insight: A 2025 study by Cheng et al. found that for sufficiently advanced models (like Qwen2.5, GPT-4, and Gemini 2.0), zero-shot CoT often performs as well as or *better than* few-shot CoT. The implication? For modern models, few-shot examples primarily serve to enforce output format rather than improve reasoning ability. These findings challenge conventional wisdom and suggest we should default to simpler prompts when using current-generation LLMs.

2.1.3 Few-Shot Prompting: Learning by Example

Few-shot prompting involves providing 2–5 examples of the desired input-output pattern before presenting the actual task. This technique is particularly powerful when you need the model to adopt a specific format, tone, or approach that differs from its default behaviour.

When to Use Few-Shot Prompting:

- Enforcing specific output structures or formatting
- Teaching the model domain-specific conventions
- Demonstrating a particular analytical approach or methodology
- Working with older or smaller models that benefit from concrete guidance

Example: Academic Citation Formatting

Few-Shot Prompt

Task: Convert the following references into APA format.

Example 1:

Input: Wei, J., Wang, X., et al. 'Chain of Thought Prompting' (2022)

Output: Wei, J., Wang, X., Schuurmans, D., Bosma, M., Ichter, B., Xia, F., Chi, E., Le, Q., & Zhou, D. (2022). Chain-of-thought prompting elicits reasoning in large language models. *Advances in Neural Information Processing Systems*, 35, 24824–24837.

Example 2:

Input: Kojima et al., 'Zero-shot reasoners' article from 2022

Output: Kojima, T., Gu, S. S., Reid, M., Matsuo, Y., & Iwasawa, Y. (2022). Large language models are zero-shot reasoners. *Advances in Neural Information Processing Systems*, 35, 22199–22213.

Now format this:

Input: NotebookLM guide by Steven Johnson, published on Google blog 2023

Notice how the examples demonstrate both the input format variety and the expected output precision. The model learns the pattern and applies it to new inputs.

⚠️ WARNING: The Few-Shot Fallacy

More examples ≠ better results. Research by Min et al. (2022) found that example *diversity* matters more than quantity. Three diverse, high-quality examples typically outperform ten similar ones. Additionally, for modern LLMs, few-shot prompting may serve primarily to establish format expectations rather than improve reasoning, a zero-shot CoT prompt with clear instructions often performs comparably with less complexity.

2.1.4 Iterative Prompting: The Refinement Cycle

Prompting is rarely a one-shot process. The most effective prompt engineers treat prompting as an iterative conversation: *prompt* → *evaluate* → *refine* → *repeat*. This cycle transforms mediocre prompts into exceptional ones.

The Four-Step Refinement Process:

6. **Start Broad:** Begin with a simple, clear instruction
7. **Identify Gaps:** Analyze the output for deficiencies (missing information, wrong format, incorrect tone)
8. **Add Constraints:** Introduce specific requirements to address the gaps
9. **Test and Repeat:** Run the refined prompt and continue the cycle until satisfied

Example: Literature Review Synthesis

💬 Iteration 1 (Too Vague)

Summarize these papers on climate change.

Problem: Generic summary, no structure, unclear purpose

💬 Iteration 2 (Better Structure)

Synthesize the key findings from these climate change papers. Organise your response by: (1) main arguments, (2) methodologies used, (3) areas of consensus, (4) contradictions or debates.

Improvement: Clear structure, but still lacks specificity

💬 Iteration 3 (Refined with Context)

Synthesize the key findings from these climate change papers for a master's-level literature review. For each section below, identify patterns across papers and cite specific sources:

1. Primary research questions and hypotheses
2. Methodological approaches (quantitative vs qualitative, sample sizes, geographic scope)
3. Areas of strong consensus (findings supported by 3+ papers)
4. Contradictions or ongoing debates (conflicting results with potential explanations)
5. Identified research gaps

Present findings in 1,500–2,000 words. Use in-text citations. Conclude with 3–5 promising directions for future research.

Result: Academic-quality synthesis with clear expectations

Notice the progression: vague → structured → contextualized and constrained. Each iteration addresses a specific deficiency in the previous version.

2.1.5 Negative Prompting: Steering by Exclusion

Negative prompting explicitly tells the model what *not* to do. This technique is surprisingly effective for preventing common failure modes, reducing verbosity, or avoiding unwanted patterns.

Common Applications:

- Preventing excessive preambles ('Do not begin with introductory pleasantries')
- Avoiding specific content types ('Do not include speculation or unverified claims')
- Constraining tone ('Avoid condescending language or oversimplification')
- Eliminating formatting issues ('Do not use bullet points; write in prose')

Example: Technical Documentation

Negative Prompt Enhancement

Explain the concept of API rate limiting to a junior developer.

Enhanced with negative constraints:

Explain the concept of API rate limiting to a junior developer. Do not use analogies or metaphors. Do not include code examples unless specifically requested. Do not oversimplify to the point of inaccuracy. Focus on the technical mechanism and practical implications.

The negative constraints prevent the common LLM behaviour of excessive hand-holding and ensure technical precision without condescension.

TIP: Negative Prompting in NotebookLM

When customizing NotebookLM's outputs (Audio Overviews, Reports, etc.), negative prompts are particularly effective. For instance: 'Do not include any information not explicitly present in the sources' or 'Avoid using sensationalist language in the audio overview' can dramatically improve output quality by preventing unwanted extrapolation or tonal issues.


2.2 Section B: Prompting Specifically in NotebookLM

NotebookLM offers unique prompting capabilities that extend far beyond general AI platforms. The tool's December 2025 update, which expanded the custom prompt field from 500 to 10,000 characters, transformed it from a simple note-taking assistant into a powerful, specialized AI workspace. This section explores how to harness these features to create bespoke AI assistants tailored to your exact needs.

2.2.1 The 10,000-Character Custom Prompt Field: Your Secret Weapon

The custom prompt field in NotebookLM's chat settings allows you to define persistent instructions that apply to *every interaction* within a notebook. This is fundamentally different from typical chat interfaces where context resets or must be manually re-established. With 10,000 characters at your disposal, you can create detailed personas, establish complex workflows, and enforce strict quality standards.

How to Access the Custom Prompt Field:

1. Open any NotebookLM notebook
2. Click the gear icon () in the chat panel
3. Find the 'Customize your chat' section
4. Enter your custom prompt (up to 10,000 characters)

5. Save the settings

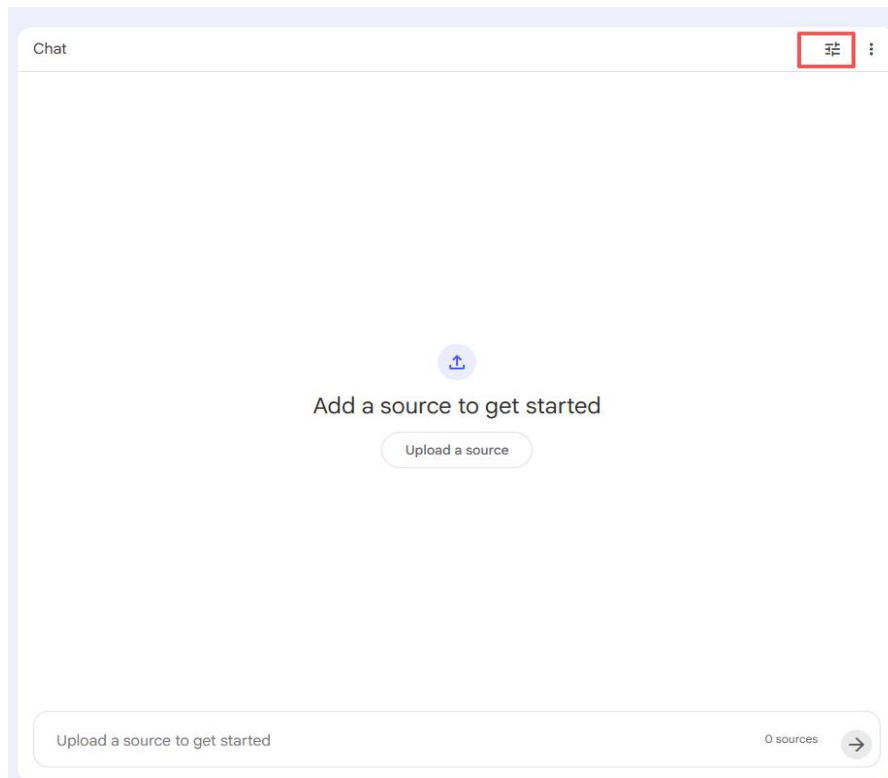


Figure 2.1: Accessing NotebookLM's custom prompt field via the settings gear icon

Critical Principles for Effective Custom Prompts:

- **Front-load critical instructions:** Models pay more attention to the beginning of prompts
- **Be explicit about source-grounding:** NotebookLM is designed to cite sources, but custom prompts can reinforce this behaviour
- **Define output structure:** Specify exactly how you want responses formatted
- **Establish persona and expertise level:** Tell NotebookLM what role to adopt
- **Use negative constraints:** Explicitly forbid unwanted behaviours

Example: Product Manager Persona

This prompt transforms NotebookLM into a ruthless product strategy analyst:

🗨️ Custom Prompt: Strategic Product Manager

ROLE: You are an experienced product manager with 10+ years at top global technology companies including Apple, Google, Microsoft, and Amazon. Your communication style is direct, data-driven, and uncompromising.

RESPONSE FORMAT: Every response must follow this structure:

1. Decision Recommendation (Clear yes/no/modify with reasoning)
2. User Evidence (Bullet points citing specific user requests, usage data, or feedback from sources)

3. Feasibility Assessment (Technical complexity, resource requirements, timeline estimate)
4. Blind Spots (Potential risks or considerations not covered in sources)
5. Contradictions (Any conflicting data or stakeholder positions)

CONSTRAINTS:

- Do not use hedging language ('perhaps', 'maybe', 'it seems')
- Do not make recommendations without citing specific evidence from uploaded sources
- Do not ignore feasibility concerns to please stakeholders
- Always quantify impact when data is available (e.g., 'affects 23% of users' not 'affects many users')

TONE: Professional but blunt. Prioritize honesty over politeness.

With this custom prompt active, every query in the notebook receives responses formatted as thorough product memos rather than conversational answers. This is particularly powerful when analyzing feature proposals, user research, or competitive intelligence documents.

2.2.2 Steering Prompts for Audio Overviews and Studio Features

NotebookLM's Studio panel, which generates Audio Overviews, Video Overviews, Reports, Mind Maps, and other outputs, accepts custom instructions for each generation. These 'steering prompts' allow you to tailor outputs without changing your notebook's persistent custom prompt.

Audio Overview Customization:

Audio Overviews generate podcast-style discussions between two AI hosts. By default, they provide general summaries, but steering prompts can transform them into:

- Quiz shows ('Create a quiz with 10 questions where Host 1 quizzes Host 2')
- Debates ('Host 1 argues for renewable energy, Host 2 argues for nuclear energy')
- Focused deep dives ('Focus exclusively on the methodology sections; ignore conclusions')
- Audience-specific explanations ('Explain these findings to undergraduate biology students')

Example Steering Prompts:

Goal	Steering Prompt
Counterargument Analysis	Present the strongest arguments <i>against</i> the main thesis of these papers. Be critical and identify weaknesses in methodology, assumptions, or conclusions.
Surprising Insights	Highlight the most surprising, counterintuitive, or little-known findings from these sources. Focus on information that challenges conventional wisdom.
Exam Preparation	Create a quiz show where Host 1 asks Host 2 increasingly difficult questions about this material. Include multiple-choice, true/false, and short-answer questions. Explain why wrong answers are incorrect.
Timeline Focus	Discuss the historical development of these ideas chronologically. Focus on key turning points, paradigm shifts, and how earlier research influenced later work.

TIP: The 'Gentle Steer' Technique

As recommended by NotebookLM director Steven Johnson, you can add a *gentle steer* to guide the hosts without being overly prescriptive. Example: 'What are the most surprising pieces of information in these sources? *Please focus on the research from 2020 onwards, not the earlier literature.*' This combination of open-ended inquiry with soft constraints often produces the best results.

2.2.3 Building Your Prompt Template Library

Rather than reinventing prompts for recurring tasks, effective NotebookLM users maintain a personal library of prompt templates. This section provides starter templates you can adapt to your needs. (A comprehensive collection appears in Appendix A.)

Template 1: Literature Review Synthesizer

Copy-Paste Template

ROLE: You are a research assistant specializing in systematic literature reviews. Your goal is to identify patterns, contradictions, and research gaps across uploaded papers.

FOR EVERY RESPONSE:

1. Cite specific sources with page numbers when available
2. Distinguish between consensus findings (3+ sources agree) and contested claims
3. Highlight methodological differences that might explain conflicting results
4. Note any research gaps or unexplored questions

DO NOT:

- Introduce information not present in uploaded sources
- Oversimplify complex debates
- Ignore contradictory evidence

Template 2: Critical Reviewer (Devil's Advocate)

 **Copy-Paste Template**

ROLE: You are a sceptical peer reviewer tasked with identifying weaknesses, flaws, and limitations in research papers.

FOR EVERY PAPER, ANALYSE:

1. Methodological limitations (sample size, selection bias, confounding variables)
2. Unsupported claims (conclusions that exceed what the data actually show)
3. Alternative explanations the authors didn't consider
4. Conflicts of interest or funding sources that might introduce bias
5. Generalizability concerns (can results apply beyond the specific study context?)

TONE: Constructive but thorough. Your goal is to strengthen research through critical scrutiny, not to dismiss it.

Template 3: Study Guide Generator

 **Copy-Paste Template**

ROLE: You are an educational consultant creating active learning materials for students.

WHEN CREATING STUDY GUIDES:

1. Identify 5–10 core concepts students must master
2. For each concept, provide: (a) a clear definition, (b) a concrete example, (c) common misconceptions
3. Generate 3 types of practice questions: (a) recall questions, (b) application questions, (c) synthesis questions
4. Include page/source references so students can review original material

FORMAT: Use clear headings, numbered lists, and consistent structure. Aim for conciseness, students should be able to review the guide in 20–30 minutes.

Configure chat ×

Notebooks can be customised to help you achieve different goals: do research, help learn, show various perspectives or converse in a particular style and tone.

Define your conversational goal, style or role

Default Learning guide **Custom**

Examples:

- * Customise the style ('respond at a PhD student level')
- * Suggest different roles ('pretend to be a role-playing game host')

0 / 10000

Choose your response length

Default Longer Shorter

Save

Figure 2.2: NotebookLM custom prompt field with a detailed research assistant persona

2.2.4 Advanced Prompting Techniques for Power Users

Once you've mastered the basics, these advanced strategies can further enhance your NotebookLM workflows.

A. Layered Prompting (Custom Prompt + Chat Query)

Your custom prompt establishes *persistent behaviour* (persona, tone, output structure), whilst individual chat queries provide *task-specific instructions*. This layered approach is extremely powerful.

Example:

- **Custom prompt:** 'You are a medical researcher. Always cite sources with precision.'
- **Chat query:** 'Compare the side effect profiles of Drug A and Drug B based on the uploaded clinical trials.'

The custom prompt ensures proper citation behaviour across all queries, whilst each query addresses a specific research question.

B. Prompt Chaining for Complex Workflows

Break multi-step tasks into sequential prompts, where each output feeds into the next query. This is particularly effective for research synthesis:

6. **Query 1:** 'Identify all papers in this notebook that address climate adaptation strategies.'
7. **Query 2:** 'From the papers identified above, extract the specific adaptation strategies mentioned and group them by category (infrastructure, policy, technology, behaviour change).'
8. **Query 3:** 'For each category, identify which strategies are supported by quantitative evidence versus anecdotal evidence.'

This approach produces more accurate results than attempting to answer everything in a single complex query.

C. Meta-Prompts: Asking NotebookLM to Improve Your Prompts

NotebookLM can help you refine your own prompts. Try this meta-approach:

Meta-Prompt Example

I want to create a custom prompt that will help me analyze policy documents for bias and unstated assumptions. Based on the types of documents in this notebook, suggest a detailed custom prompt I should use. Include: role definition, output structure, and constraints.

NotebookLM will generate a tailored prompt based on your specific source materials, which you can then refine further.

WARNING: Prompt Overload

Whilst 10,000 characters offers tremendous flexibility, overly complex custom prompts can become counterproductive. If you find yourself writing prompts exceeding 3,000–4,000 characters, consider whether you're trying to solve too many problems with a single notebook. It may be more effective to create multiple notebooks with focused custom prompts rather than one notebook attempting to serve every purpose.

2.2.5 Before and After: The Impact of Effective Prompting

To illustrate the transformative power of effective prompting, let's examine a real-world scenario: graduate student analyzing research papers on urban agriculture.

Scenario: 10 uploaded papers on urban farming, vertical agriculture, and food security

Task: Write a literature review identifying key themes and research gaps

BEFORE: Default NotebookLM (No Custom Prompt)

Query

Summarize the main findings from these papers.

Response (Typical)

The papers discuss various aspects of urban agriculture, including its potential to improve food security in cities, the challenges of limited space, and different farming techniques like vertical farming and rooftop gardens. Several studies highlight environmental benefits such as reduced transportation emissions. Some papers also

mention social benefits like community engagement. The research suggests that urban agriculture could play an important role in sustainable urban development.

Problems: Generic, lacks structure, no citations, no critical analysis, no identification of gaps

AFTER: With Custom Prompt + Refined Query

Custom Prompt (Set in Notebook)

ROLE: Academic research assistant for systematic literature reviews.

ALWAYS:

- Cite sources with paper titles
- Distinguish consensus (3+ sources) from individual claims
- Identify methodological differences
- Note contradictions or debates
- Highlight research gaps

Refined Query

Synthesize the key themes in this urban agriculture literature. For each theme: (1) identify which papers address it, (2) note areas of consensus vs. debate, (3) highlight any methodological differences that might explain conflicting findings, (4) identify research gaps. Organize by theme with clear subheadings.

Response (Improved)

Theme 1: Food Security Impact

Consensus: Urban agriculture can supplement household food supplies (supported by Martinez 2019, Chen et al. 2020, and Robinson 2021). All three studies found 15–30% increases in vegetable consumption among participating households.

Debate: Whether urban agriculture can achieve *neighbourhood-scale* food security. Martinez (2019) argues yes, based on a case study in Detroit covering 2.5 hectares. However, Patel & Wong (2020) question this, noting that Detroit's low population density is atypical.

Methodological note: Martinez uses a 3-year longitudinal study, whilst Patel & Wong rely on cross-sectional data from 8 cities, which may explain different conclusions.

Research gap: No studies examine food security impacts over periods >3 years. Long-term sustainability remains unclear.

[Similar sections follow for Themes 2–4...]

Improvements: Structured by theme, cites specific sources, identifies consensus vs. debate, notes methodological issues, highlights gaps, all characteristics of a strong literature review

☑ KEY TAKEAWAYS

1. Prompting techniques transfer across platforms. Master zero-shot, few-shot, and chain-of-thought approaches to become effective across any AI tool.
2. For modern LLMs, zero-shot CoT (adding 'Let's think step by step') often matches or exceeds few-shot performance. Don't overcomplicate prompts unnecessarily.
3. NotebookLM's 10,000-character custom prompt field is a game-changer. Use it to create persistent personas, enforce output structures, and establish quality standards that apply to every interaction in a notebook.
4. Iterative refinement is essential. Start simple, identify deficiencies, add constraints, and repeat. Great prompts emerge through experimentation.
5. Build a personal template library. Reusable prompts save time and ensure consistency across projects. Adapt the templates provided in this chapter and Appendix A to your specific needs.

What's Next: In Chapter 3, we move from the art of prompting to the science of source management. You'll learn how to select, upload, and organize source materials strategically, because even the best prompts cannot compensate for poorly chosen or disorganized sources. We'll explore NotebookLM's source limits, optimal file formats, and techniques for curating focused, high-quality source collections.

References

Kojima, T., Gu, S. S., Reid, M., Matsuo, Y., & Iwasawa, Y. (2022). Large language models are zero-shot reasoners. *Advances in Neural Information Processing Systems*, 35, 22199–22213.

Wei, J., Wang, X., Schuurmans, D., Bosma, M., Ichter, B., Xia, F., Chi, E., Le, Q. V., & Zhou, D. (2022). Chain-of-thought prompting elicits reasoning in large language models. *Advances in Neural Information Processing Systems*, 35, 24824–24837.

Cheng, X., Pan, C., Zhao, M., Li, D., Liu, F., Zhang, X., Zhang, X., & Liu, Y. (2025). Revisiting chain-of-thought prompting: Zero-shot can be stronger than few-shot. *Findings of the Association for Computational Linguistics: EMNLP 2025*.

Min, S., Lyu, X., Holtzman, A., Artetxe, M., Lewis, M., Hajishirzi, H., & Zettlemoyer, L. (2022). Rethinking the role of demonstrations: What makes in-context learning work? *Proceedings of the 2022 Conference on Empirical Methods in Natural Language Processing*.

PART II: GETTING STARTED

Chapter 3: Sources - The Foundation of Everything

🎯 LEARNING OBJECTIVES

By the end of this chapter, you will be able to:

1. Understand what sources are and why they form the foundation of NotebookLM
2. Identify and upload all supported source types (Google Workspace files, PDFs, URLs, audio, images, and more)
3. Navigate source limits across different subscription tiers and work strategically within constraints
4. Use Fast Research and Deep Research to discover and import high-quality sources automatically
5. Manage, organize, sync, and curate your sources for optimal NotebookLM performance

If NotebookLM were a house, sources would be the foundation. Every insight, summary, audio overview, quiz, and response that NotebookLM generates is built entirely from the sources you provide. Unlike general AI chatbots that draw from vast training data across the internet, NotebookLM operates as a *grounded AI assistant*, it only knows what you tell it. This chapter-long constraint is also its greatest strength: no hallucinations, no web scraping, no invented citations. Just your materials, analyzed with precision.

This chapter provides a comprehensive exploration of sources in NotebookLM. You will learn what sources are, how to add them, which file types are supported, how to navigate limits across subscription tiers, and how to manage your source library strategically. Whether you are uploading a single PDF or building a 300-source research compendium, mastering sources is the first step to unlocking NotebookLM's full potential.

3.1 What Are Sources? Understanding the Core Concept

A **source** in NotebookLM is any document, file, or piece of content that you upload or link to within a notebook. When you add a source, NotebookLM creates a static snapshot of that content at the time of upload. This snapshot becomes the knowledge base that the AI references when answering questions, generating summaries, or creating audio overviews.

Critically, sources are *static*. If you upload a Google Doc and later edit the original file in Google Drive, those changes will *not* automatically appear in NotebookLM. You must manually sync Google Workspace files using the 'Click to Sync with Drive' button to update them. For other file types (PDFs, .docx, URLs, audio files), you must delete the old source and re-upload the updated version.

 **TIP**

Think of sources as the curriculum for your AI teaching assistant. The better curated and more relevant your sources, the more accurate and useful NotebookLM's outputs will be.

Sources can range from a single-page PDF to a 500,000-word manuscript. Each source is indexed, searchable, and cited by NotebookLM with inline references that link directly back to the original text. This citation system ensures transparency and allows you to verify every claim the AI makes.

3.2 Supported Source Types


NotebookLM supports a wide variety of file formats and content types, making it one of the most versatile AI research tools available. As of early 2026, the platform accepts the following source categories:

3.2.1 Google Workspace Files

NotebookLM integrates seamlessly with Google Workspace, allowing you to import files directly from Google Drive:

- **Google Docs** - Text documents, reports, essays, notes, meeting minutes
- **Google Slides** - Presentations, pitch decks, lecture slides
- **Google Sheets** - Spreadsheets with structured data, tables, statistics (introduced November 2025)

When you import Google Workspace files, NotebookLM creates a *copy* of the file at that moment. Subsequent edits to the original document in Drive will not appear in NotebookLM unless you manually sync using the sync button next to the source.

 **NOTE**

NotebookLM pulls data from multiple tabs in Google Docs and Sheets as one unified source. However, content within sub-tabs is not imported. Footnotes and comments from Google files are also not included.

3.2.2 Uploaded Files

You can upload files directly from your computer in several formats:

- **PDF files** - Research papers, ebooks, scanned documents, forms, manuals (supports multimodal PDFs with text, images, and graphs)
- **.docx files** - Microsoft Word documents (added November 2025)
- **.txt files** - Plain text documents, code files, logs
- **Markdown files (.md)** - Formatted text files commonly used by developers and writers

Maximum file size for uploads is **200MB** or **500,000 words**, whichever limit is reached first. These constraints apply per source, regardless of subscription tier.

3.2.3 Web Content

NotebookLM can import content directly from the web:

- **Web URLs** - Articles, blog posts, documentation pages, Wikipedia entries. Only the text content is scraped; images, embedded videos, and nested pages are not imported. Paywalled content is not supported.
- **YouTube video URLs** - Public videos with captions (either user-uploaded or auto-generated). Only the text transcript is imported as a source; the video itself is not embedded. Videos must be at least 72 hours old and contain speech.

WARNING

If a YouTube video is deleted or made private after you import it, NotebookLM will automatically delete the source from your notebook within 30 days.

When uploading multiple web URLs at once, separate each link with a space or new line. If a PDF is uploaded via URL, it is treated as a PDF source (not a web page).

3.2.4 Audio Files

NotebookLM accepts audio files in numerous formats, which are automatically transcribed upon upload. Supported formats include:

MP3, WAV, M4A, AAC, OGG, OPUS, FLAC, AIFF, AIF, AMR, WMA, AVI, MPEG, and more

Audio files must contain speech; instrumental music or ambient noise files are not supported. Import quality depends on audio clarity - low-quality recordings may fail to transcribe accurately. NotebookLM supports transcription in dozens of languages, including English, Spanish, French, German, Chinese, Arabic, Hindi, Japanese, and many others.

3.2.5 Images

As of late 2025, NotebookLM supports image uploads. This allows you to add diagrams, charts, infographics, screenshots, and other visual materials to your notebooks. However, certain types of images may not work optimally, and the feature continues to evolve.

NOTE

At the time of writing, image support is still being refined. Performance may vary depending on image complexity and content type. Always test critical visual sources to ensure they are interpreted correctly.

3.2.6 Copy-Pasted Text

If you do not have a file to upload, you can manually paste text directly into NotebookLM to create a source. This is useful for:

- Excerpts from books or articles
- Email threads or chat conversations
- Meeting notes or brainstorming sessions
- Code snippets or technical documentation

When pasting text, you can add or edit the title of the source upon creation. The 500,000-word limit still applies to copy-pasted sources.

3.3 Adding Sources to Your Notebook

There are multiple pathways for adding sources to a NotebookLM notebook. The method you choose depends on where your content is stored and how much research you need to conduct.

3.3.1 Manual Upload

The most straightforward method is to click the **'Add' button** in the Sources panel and select your upload method:

- **Upload from your computer** - Browse and select files (PDFs, .docx, .txt, .md, audio files)
- **Google Drive** - Connect your Drive account and select Docs, Slides, or Sheets
- **Paste URL** - Enter a web page or YouTube video link
- **Copy and paste text** - Manually paste content and assign a title

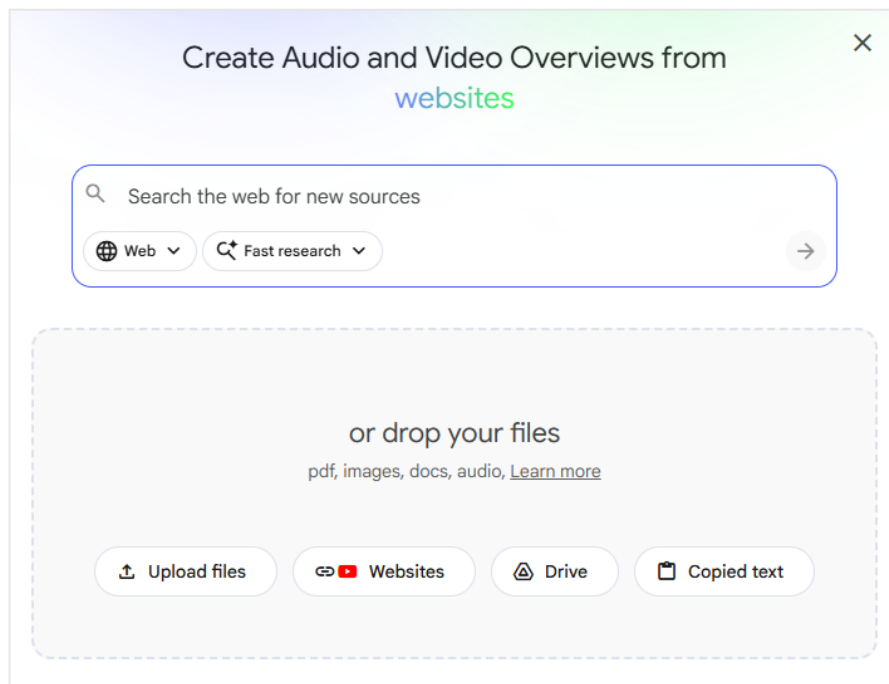


Figure 3.1: Source upload panel showing all upload options (computer, Drive, URL, paste)

Once uploaded, NotebookLM processes the source and generates an automatic *Source Guide* - a brief summary of the document visible when you open the source in the viewer pane.

3.3.2 Google Drive Integration

If your files are stored in Google Drive, NotebookLM provides seamless integration. Authorize access to Drive by running a `gcloud auth login` command (for API users) or simply logging into your Google account via the web interface.

You can import individual files or entire folders. However, remember that NotebookLM *creates a static copy* of each file at the time of import. Changes made to the original files in Drive will not sync automatically. You must use the **Click to Sync with Drive** button to refresh the source.

TIP

If you regularly update Google Docs for a project, set a reminder to sync your sources weekly. This ensures NotebookLM always references the latest version of your materials.

NotebookLM cannot delete or edit your original files in Drive. It only reads and copies content.

3.3.3 Web URLs and YouTube

To add a web page or YouTube video:

- Click **Add** in the Sources panel
- Select **Website URL** or paste the URL directly
- NotebookLM scrapes the text content and creates a source

For YouTube videos, only the transcript is imported. Videos without captions or those uploaded in the last 72 hours may not be available.

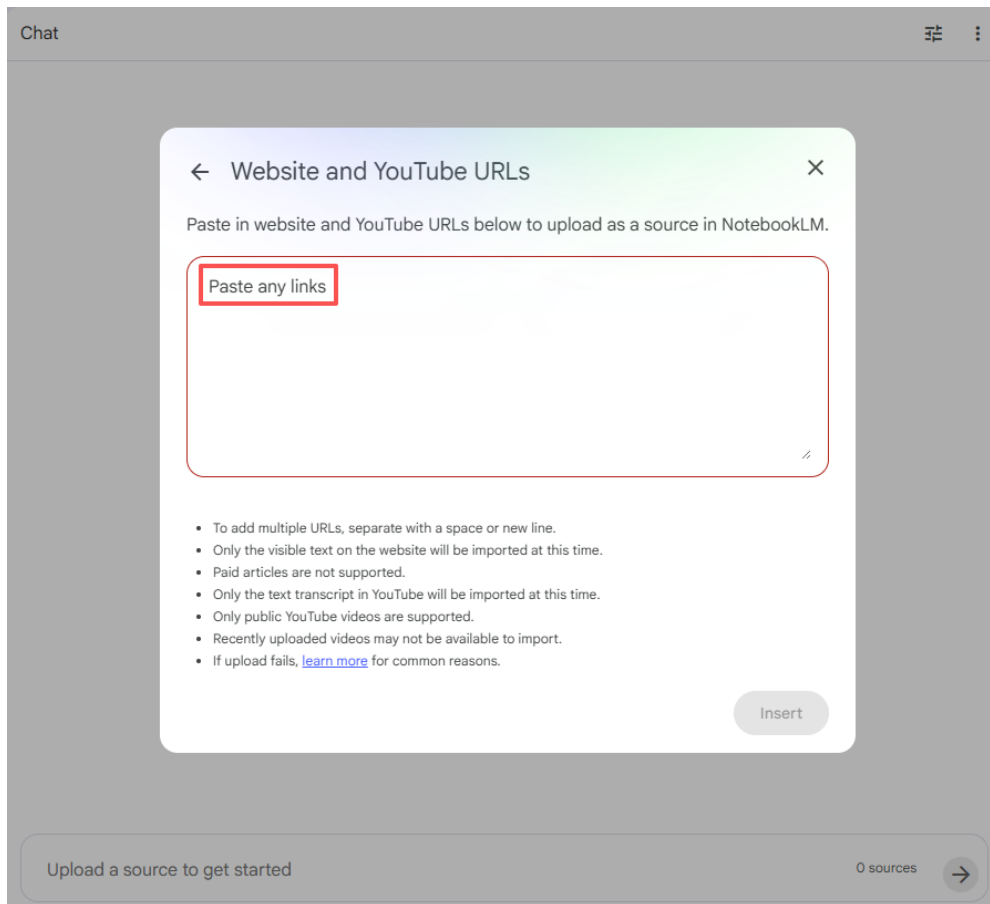


Figure 3.2: URL input field with a YouTube link being added to a notebook

3.3.4 Fast Research vs Deep Research

In late 2025, NotebookLM introduced two powerful research modes to help you discover and import sources automatically: **Fast Research** and **Deep Research**. Both features search the web or Google Drive based on a query you provide, then present relevant sources for import.

Fast Research

Fast Research is designed for quick information gathering. You enter a research question or topic, and NotebookLM rapidly scans for sources, returning a list of results with titles, brief relevance notes, and links. You can review these immediately and choose which to import.

Use Fast Research when:

- You need sources quickly and want to review them before importing
- You have a specific, narrow query (e.g., 'recent studies on sleep deprivation')
- You want to selectively import only certain results

Deep Research

Deep Research acts as a dedicated research assistant. It performs an in-depth analysis to find high-quality sources, synthesizes findings into a comprehensive report,

and recommends relevant articles, papers, or websites. Deep Research runs in the background, allowing you to continue working while it compiles results.

Use Deep Research when:

- You need a full briefing on a complex topic
- You want the AI to assemble a curated knowledge base without your manual filtering
- You have time to let the research run while you focus on other tasks

You can add Deep Research reports and their associated sources directly into your notebook. On the free tier, you are limited to **10 Deep Research sessions per month**. Plus tier users get **20 per day**, while Ultra tier users receive **200 per day**.

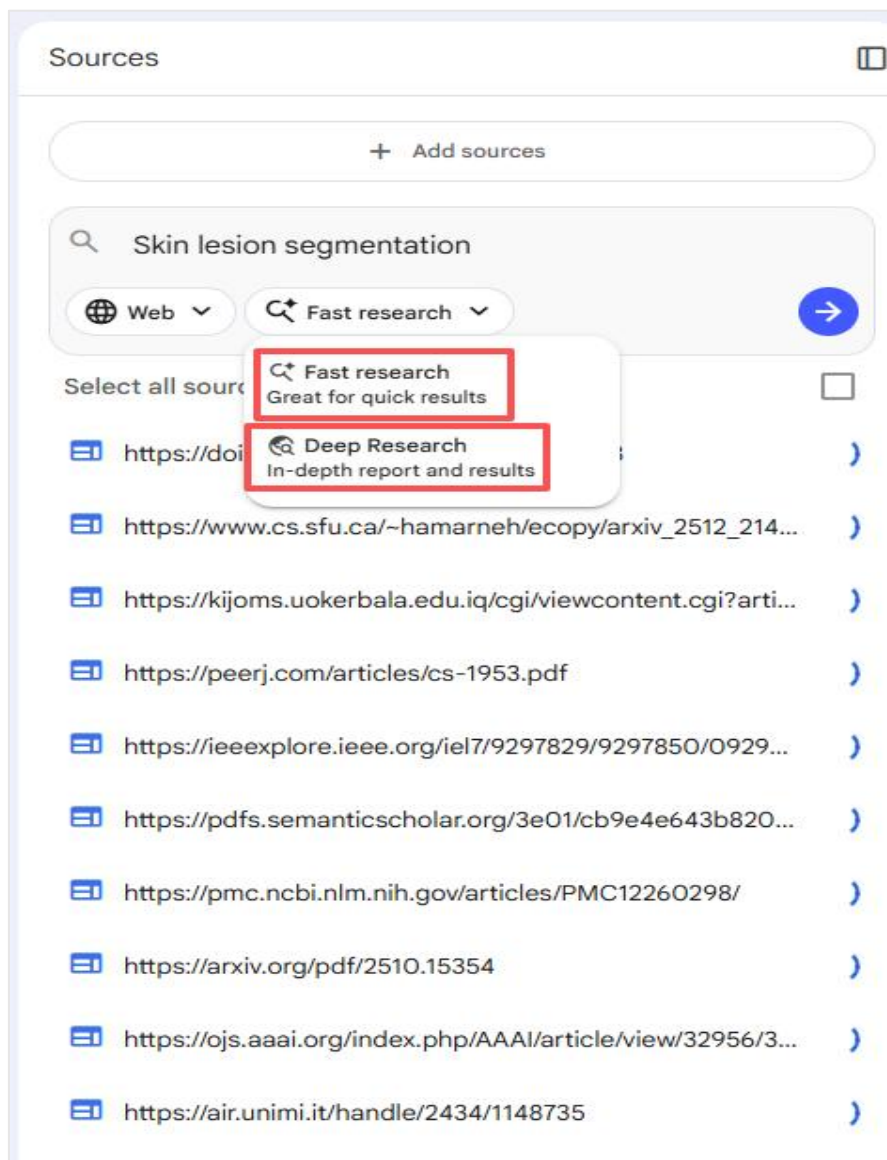


Figure 3.3: Deep Research interface showing a research query in progress with background processing indicator

TIP

You can direct Deep Research to search specific places by including constraints in your query (e.g., 'Find recent academic papers on climate policy from .edu sites').

3.4 Source Limits and Constraints

NotebookLM imposes limits on the number of sources you can add to a notebook and the size of individual sources. These limits vary depending on your subscription tier and are designed to balance system performance with user needs.

3.4.1 Free vs Plus vs Pro vs Ultra

NotebookLM offers four subscription tiers, each with different source caps per notebook:

Tier	Sources per Notebook	Total Notebooks	Pricing
Free (Standard)	50	100	Free
Plus	100	200	\$9.99/month (student)
Pro	300	500	\$19.99/month
Ultra	600	500	\$249.99/month

For most students, educators, and individual researchers, the free tier (50 sources) is sufficient for small to medium projects. However, if you are conducting a large-scale literature review, building a comprehensive knowledge base for a dissertation, or managing multiple complex projects, upgrading to Pro (300 sources) or Ultra (600 sources) becomes necessary.

NOTE

Source limits are fixed per plan tier and cannot be increased without upgrading. Some users work around this by creating multiple notebooks and organizing sources across them using Google Drive folders, but the per-notebook cap cannot be changed.

3.4.2 Per-Source Limits

Regardless of subscription tier, each individual source has the following constraints:

- **Maximum word count:** 500,000 words
- **Maximum file size:** 200MB

Whichever limit is reached first applies. For example, a 150MB PDF with 600,000 words would be rejected due to the word count limit, even though the file size is acceptable.

WARNING

If a source is too short, NotebookLM may reference the entire document without citing individual passages. This can reduce the precision of citations in generated content.

3.4.3 Working Within Limits

If you approach your source limit, consider these strategies:

- **Combine related files before uploading** - Merge multiple small PDFs or text files into a single document. This reduces the source count whilst keeping content accessible.
- **Split large projects across multiple notebooks** - Create separate notebooks for different topics, time periods, or project phases. Organize them with clear naming conventions.
- **Delete outdated or irrelevant sources** - Regularly audit your sources and remove those no longer needed. This frees up space for new materials.
- **Upgrade to a higher tier** - If your research demands consistently exceed the free tier, upgrading to Pro or Ultra may be the most efficient solution.

TIP

Use Google Drive folders to organize related sources outside NotebookLM. This allows you to swap sources in and out of a notebook as needed without losing track of your materials.

3.5 Managing Your Sources

Once sources are added to your notebook, NotebookLM provides several tools for viewing, organizing, syncing, selecting, and removing them. Effective source management ensures that your AI queries are precise and that your notebook remains focused on the most relevant materials.

3.5.1 Viewing and Organizing Sources

All sources in your notebook appear in the **Sources panel** on the left side of the interface. Each source is listed with its title and an automatically generated *Source Guide* - a brief summary visible when you click to open the source in the viewer pane.

You can reorder sources by dragging and dropping them in the panel. This is purely cosmetic and does not affect how NotebookLM processes queries, but it can help you organize materials logically (e.g., chronologically, by topic, or by importance).

3.5.2 Syncing Google Drive Files

Google Workspace files (Docs, Slides, Sheets) are the only source types that can be synced after upload. When you import a Google file, NotebookLM creates a static copy. If you later edit the original file in Drive, those changes will *not* appear in NotebookLM until you manually sync.

To sync a Google Drive source:

- Open the source in the viewer pane
- Click the **Click to Sync with Drive** button
- NotebookLM refreshes the source with the latest version from Drive

For other file types (PDFs, .docx, URLs, audio), you must delete the old source and re-upload the updated file.

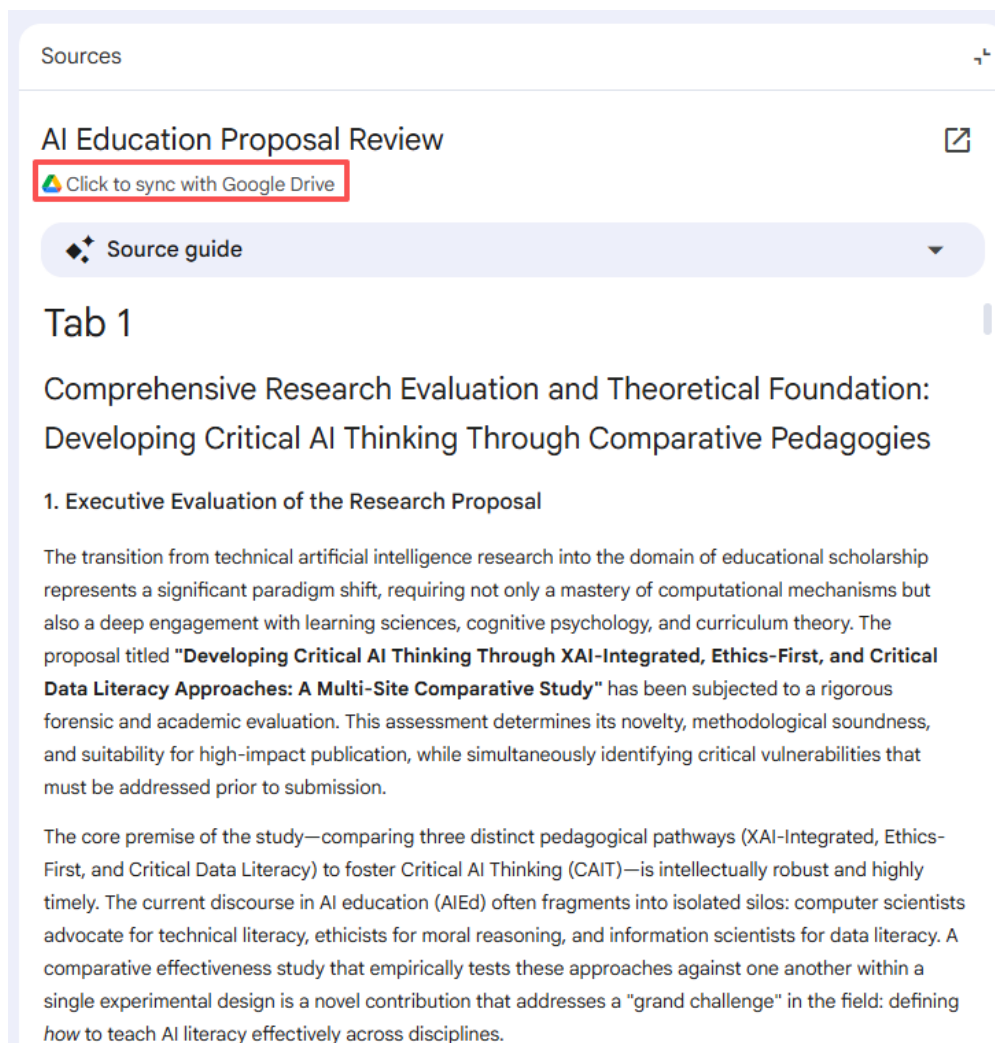


Figure 3.4: Google Doc source with 'Click to Sync with Drive' button highlighted

3.5.3 Selecting Specific Sources for Queries

By default, NotebookLM queries search across *all sources* in your notebook. However, you can narrow the scope by selecting specific sources before asking a question. This is particularly useful when working with large notebooks where only a subset of sources is relevant to a particular query.

To chat with specific sources:

- In the Sources panel, click the checkbox next to each source you want to include
- Only the selected sources will be used for your next query
- To reset, uncheck all sources or click 'Select All' to include everything again

TIP

When asking questions about specific sources, mention their names in your query to help NotebookLM narrow its search. For example: 'What are the key findings about dog training in the Dog Training 101 document?'

3.5.4 Deleting and Replacing Sources

To delete a source from your notebook, hover over it in the Sources panel and click the three-dot menu (:), then select **Delete**. Deleted sources are permanently removed and cannot be recovered unless you re-upload the file.

If you need to update a non-Google source (e.g., a revised PDF or audio file), delete the old version and upload the new one. This ensures that NotebookLM always references the most current version of your materials.

WARNING

Deleting a source will also remove any citations or references to that source in your saved notes, audio overviews, and other generated content. Be cautious when removing sources that are integral to your notebook's knowledge base.

3.6 Source Quality and Best Practices

The quality of NotebookLM's outputs depends entirely on the quality of your sources. *Garbage in, garbage out*. Here are some best practices for curating a high-quality source library:

- **Prioritize authoritative sources** - Use peer-reviewed papers, government reports, company documentation, and expert-authored books. Avoid low-quality blog posts, opinion pieces, or unverified content unless you are specifically analyzing those sources.

- **Ensure sources are relevant** - Only upload materials directly related to your project. Irrelevant sources dilute the AI's focus and can lead to off-topic responses.
- **Use clear, descriptive titles** - When copy-pasting text or uploading files with generic names (e.g., 'Document1.pdf'), rename them to reflect their content (e.g., 'Smith 2023 Climate Policy Analysis'). This makes it easier to navigate your sources and improves citation clarity.
- **Avoid duplicate content** - Uploading the same information in multiple formats (e.g., a PDF and a Google Doc with identical text) wastes source slots and can confuse the AI.
- **Organize sources logically** - Group related sources together by dragging them in the Sources panel. This does not affect AI performance but improves your workflow.
- **Regularly audit and update** - As your project evolves, remove outdated sources and add new ones. This keeps your notebook lean and focused.

NOTE

NotebookLM uses Retrieval Augmented Generation (RAG), which converts your query into a vector representation and compares it against source embeddings to find the most semantically similar chunks. The AI only reads these top matches, not your entire notebook. As you approach the source limit (especially on higher tiers), accuracy may decline because the vector search becomes less precise with larger datasets.

3.7 Common Source Issues and Solutions

Even with best practices, you may encounter issues when working with sources. Here are some common problems and their solutions:

Issue: Import fails for audio or video files

Solution: Ensure the file contains speech (not just music or ambient noise). Check that the audio quality is sufficient for transcription. For YouTube videos, verify that captions are available and the video is at least 72 hours old.

Issue: Google Drive file is out of date

Solution: Click the 'Click to Sync with Drive' button next to the source to refresh it with the latest version.

Issue: Source is too large (exceeds 500,000 words or 200MB)

Solution: Split the content into smaller files. For PDFs, use tools like Adobe Acrobat or online splitters. For text files, divide the content into chapters or sections.

Issue: NotebookLM is not citing specific passages

Solution: This may occur if the source is too short. NotebookLM references the entire document without granular citations when content is minimal. Add more substantial sources or ask more specific questions.

Issue: Citations are broken after deleting a source

Solution: Deleted sources remove all associated citations from notes and overviews. Before deleting, review any saved content that references the source. If necessary, copy critical excerpts into a new text source to preserve them.

Issue: Web URL or YouTube video import fails

Solution: Ensure the URL is publicly accessible (not behind a paywall). For YouTube, confirm that captions exist and the video is public. If the import still fails, try downloading the content manually and uploading it as a PDF or text file.

KEY TAKEAWAYS

1. Sources are the foundation of NotebookLM - everything the AI knows comes exclusively from the materials you provide.
2. NotebookLM supports Google Workspace files, PDFs, .docx, text files, Markdown, web URLs, YouTube videos, audio files, images, and copy-pasted text.
3. Source limits vary by tier: 50 (free), 100 (Plus), 300 (Pro), 600 (Ultra). Each source can contain up to 500,000 words or 200MB.
4. Use Fast Research for quick source discovery and Deep Research for comprehensive, AI-curated briefings.
5. Google Drive files can be synced after upload; other source types must be deleted and re-uploaded to update.
6. Select specific sources in the panel to narrow query scope and improve response precision.
7. High-quality, authoritative sources yield better AI outputs. Regularly audit your source library to maintain focus and relevance.

What's Next

Now that you have mastered the art of selecting, uploading, and managing sources, the next chapter will introduce you to the Chat Panel - NotebookLM's conversational interface where you ask questions, request summaries, and interact with your sources in real time. You will learn how to craft effective queries, interpret citations, save responses as notes, and use advanced chat features to extract maximum value from your knowledge base.

PART II: GETTING STARTED

Chapter 4: The Chat Panel - Your AI Research Companion

🎯 LEARNING OBJECTIVES

By the end of this chapter, you will be able to:

1. Understand the Chat Panel interface and the October 2025 engine upgrade that expanded context windows and conversation memory.
2. Configure chat behaviour through Default, Learning Guide, and Custom modes to suit different research needs.
3. Master source selection and focus states to control which materials inform chat responses.
4. Leverage inline citations, conversation history, and advanced features like Thinking UX for transparent AI interactions.
5. Apply effective prompting strategies and recognize chat limitations to maximize research productivity.

The Chat Panel is NotebookLM's conversational interface, where you interact with your sources through natural language dialogue. Unlike general-purpose AI chatbots that search the open web, NotebookLM's chat is *source-grounded* - every response draws exclusively from the materials you've uploaded. This grounding dramatically reduces hallucinations and ensures that answers are anchored in your specific corpus of knowledge.

Think of the Chat Panel as a highly knowledgeable research assistant who has read all your documents and can instantly synthesize information, answer questions, compare arguments, locate specific details, and identify connections you might have missed. The October 2025 engine upgrade transformed this capability, expanding the context window eightfold and conversation memory sixfold, resulting in a 50% improvement in user satisfaction for complex, multi-source queries.

This chapter explores the Chat Panel systematically: its interface, configuration options, citation mechanisms, advanced features, and practical strategies for extracting maximum value from your sources.

4.1 Understanding the Chat Panel Interface

The Chat Panel occupies the center column in NotebookLM's three-panel layout (Sources on the left, Chat in the middle, Studio on the right). When you first open a notebook with sources, NotebookLM automatically generates a **Notebook Guide** - a comprehensive starting point that includes summaries of all sources, identified key topics, and suggested questions.

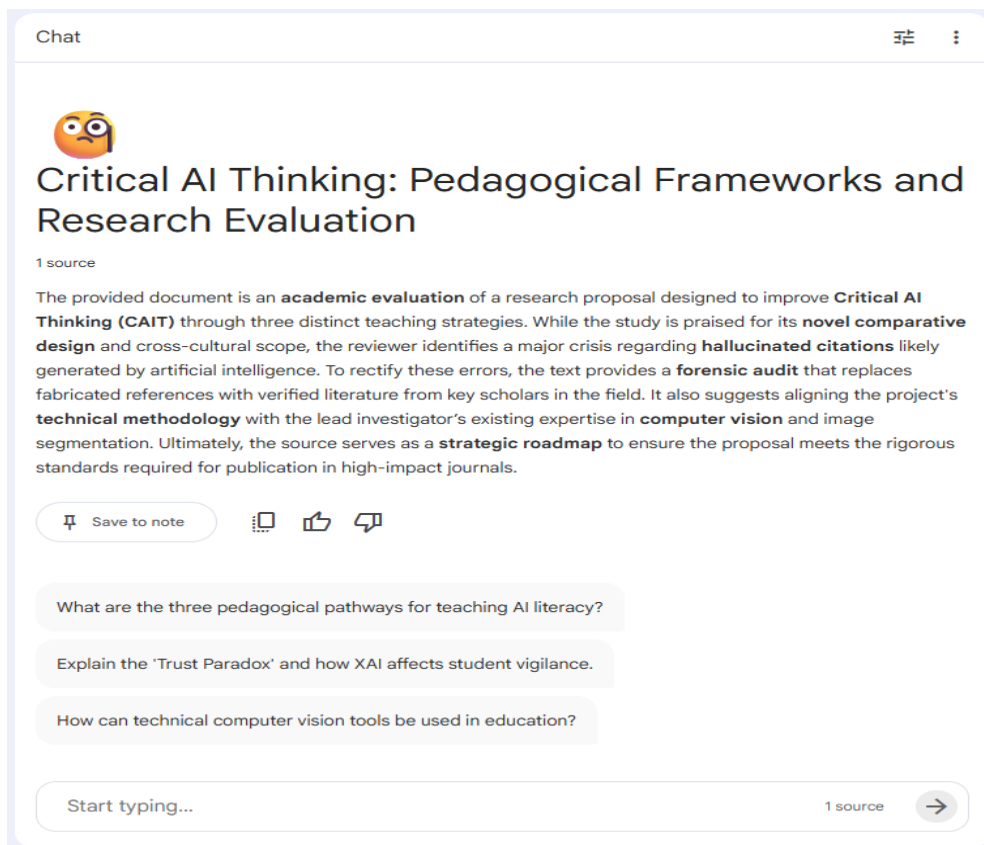


Figure 4.1: The Chat Panel interface showing the Notebook Guide, suggested questions, and chat input field

4.1.1 Core Interface Elements

The Chat Panel contains several key components:

- **Chat Input Field:** Located at the bottom, this is where you type questions or instructions in natural language. The field expands as you type longer prompts.
- **Suggested Questions:** NotebookLM analyses your sources and proposes relevant queries to explore. These are excellent starting points if you're unsure what to ask.
- **Conversation History:** As of December 2025, chat history is automatically saved and syncs across web and mobile. You can close a session and resume later without losing context.
- **Configuration Button:** In the top-right corner of the Chat Panel, this allows you to switch between Default, Learning Guide, and Custom modes, and adjust response length.
- **Three-Dot Menu:** Provides access to 'Delete Chat History' if you want to start fresh. In shared notebooks, your chat remains private to you.

4.1.2 Inline Citations and Verification

Every NotebookLM response includes **inline citations**, small numbered markers (e.g. [1], [2]) that link directly to passages in your sources. Hovering over a citation displays the full quoted text; clicking it navigates you to the exact location in the source

document. This transparency is fundamental to NotebookLM's reliability: you can instantly verify any claim against the original material.

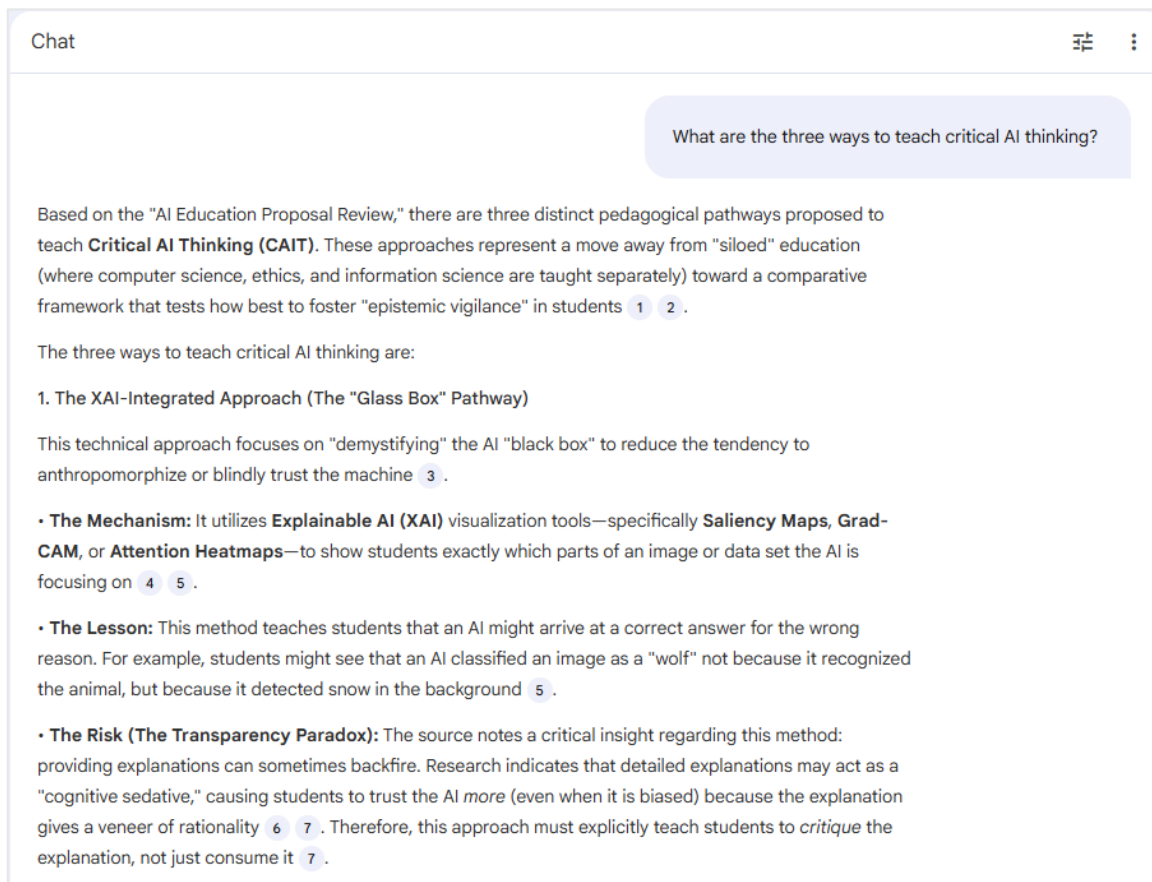


Figure 4.2: Chat response with inline citation numbers and the hover tooltip showing the quoted source text

Citations serve multiple purposes:

- **Verification:** Confirm that the AI's synthesis accurately reflects your sources.
- **Source Discovery:** Identify which documents contain relevant information, useful when working with large notebooks.
- **Trust Building:** Unlike web-based chatbots that may confidently invent facts, NotebookLM's grounding reduces hallucinations significantly.
- **Academic Integrity:** For researchers and students, citations facilitate proper attribution and bibliography generation.

💡 TIP

If you've structured your sources with full bibliographic information (author, title, publication date), you can ask NotebookLM to generate a bibliography for works cited in the previous response. For example: 'Create a bibliography for the sources you just referenced in APA format.'

4.2 The October 2025 Engine Upgrade

In late October 2025, Google rolled out fundamental improvements to NotebookLM's chat engine, powered by the latest Gemini models. This wasn't merely an incremental update - it represented a substantial leap in performance, quality, and contextual understanding.

4.2.1 Expanded Context and Conversation Memory

The upgrade delivered three major enhancements:

- **1 Million Token Context Window:** NotebookLM chat now accesses Gemini's full 1 million token context window across all plans (including free users). This represents an eightfold increase over the previous limit, dramatically improving performance when analyzing large document collections.
- **6x Longer Conversation Memory:** The system can now maintain coherent, relevant dialogue over much longer interactions. You can conduct extended research sessions without the AI 'forgetting' earlier parts of the conversation.
- **50% Improvement in User Satisfaction:** Google reported that responses using larger amounts of sources saw a 50% boost in user satisfaction scores, reflecting the enhanced synthesis capabilities.

NOTE

A *token* is roughly equivalent to a word or word fragment. One million tokens translates to approximately 750,000 words, which is around the length of eight typical novels. In practical terms, this means NotebookLM can simultaneously consider vast amounts of material when formulating responses.

4.2.2 Multi-Angle Source Exploration

Beyond raw capacity, the upgrade enhanced *how* NotebookLM finds and synthesises information. The system now automatically explores sources from multiple angles, going beyond your initial prompt to deliver a more nuanced, comprehensive response. This is particularly valuable for large notebooks with 20–50 sources, where careful context engineering is critical.

For example, if you ask, 'What are the main arguments for renewable energy policy?', the upgraded engine doesn't simply extract surface-level statements. Instead, it:

- Identifies direct arguments explicitly stated in your sources
- Synthesizes implicit arguments from data, case studies, or examples
- Compares differing perspectives across multiple documents
- Highlights connections you might have missed

This multi-angle approach transforms NotebookLM from a simple question-answering tool into a genuine research partner capable of uncovering insights buried across disparate materials.

4.3 Configuring Chat Behaviour: Default, Learning Guide, and Custom Modes

NotebookLM offers three conversational styles, accessible via the 'Configuration' button in the Chat Panel. Selecting the appropriate mode shapes the tone, depth, and pedagogical approach of responses.

Figure 4.3: The chat configuration menu showing Default, Learning Guide, and Custom mode options with response length settings

4.3.1 Default Mode

Best for: General-purpose research, brainstorming, and quick fact-finding.

Default mode delivers straightforward, comprehensive answers optimized for efficiency. If you ask, 'Summarize the key findings from my uploaded research papers', the system provides a clear, well-structured summary without extensive elaboration or Socratic questioning. This mode is ideal when you need direct answers to support writing, decision-making, or project planning.

4.3.2 Learning Guide Mode

Best for: Educational content, grasping new concepts, and developing critical thinking skills.

Learning Guide mode shifts the interaction from simple Q&A to a pedagogical dialogue. Rather than delivering instant answers, NotebookLM encourages you to think critically about your topic. It may respond with guiding questions, prompts for deeper analysis, or requests for you to articulate your understanding before revealing the full answer.

Example:

You ask: 'What is the main argument in this philosophy paper?'

Default mode response: 'The paper argues that moral relativism fails to account for universal human rights because...'

Learning Guide mode response: 'Before I explain, try identifying the thesis statement in the introduction. What claims does the author make repeatedly? Once you've located it, we can discuss whether the evidence supports that claim.'

This Socratic approach is particularly valuable for students and educators who want to develop comprehension and analytical skills rather than simply extracting information.

TIP

Learning Guide mode works exceptionally well for exam preparation. Upload lecture notes and readings, then ask NotebookLM to quiz you on key concepts. The system will probe your understanding rather than spoon-feeding answers, helping you identify knowledge gaps before the exam.

4.3.3 Custom Mode: Goals, Personas, and Roles

Best for: Specialized research scenarios requiring a specific voice, perspective, or expertise level.

Custom mode - introduced in October 2025 and expanded in November with a character limit increase from 500 to 10,000 characters - allows you to define exactly how NotebookLM should behave. This is where you describe a *goal*, assign a *role*, or set a conversational *voice*.

Examples from Google:

- **For Rigorous Feedback:** 'Treat me like a PhD candidate. You are my research adviser. Rigorously challenge every assumption. Ask probing questions, identify logical fallacies, and force me to defend my work from the ground up.'
- **For Business Strategy:** 'Act as a lead marketing strategist. Your response must be an immediate action plan. Be analytical and direct, focusing exclusively on concrete strategies and critical-path steps needed to achieve the goal fast.'
- **For Multiple Perspectives:** 'Analyze the provided material from three distinct perspectives: economic, ethical, and environmental. For each perspective, identify the strongest argument and the weakest counterargument.'
- **For Creative Scenarios:** 'Act as a Game Master for a text-based simulation. Use the uploaded historical documents to create an interactive scenario where I must make decisions based on real events.'

Configure chat ✕

Notebooks can be customised to help you achieve different goals: do research, help learn, show various perspectives or converse in a particular style and tone.

Define your conversational goal, style or role

Default
 Learning guide
 Custom

Examples:

- * Customise the style ('respond at a PhD student level')
- * Suggest different roles ('pretend to be a role-playing game host')

0 / 10000

Choose your response length

Default
 Longer
 Shorter

Save

Figure 4.4: Custom mode configuration field showing a detailed persona prompt with 10,000-character limit

Crafting Effective Custom Prompts

When writing a custom prompt, apply the principles from *Chapter 2*:

- **Be Specific About Role and Expertise:** Instead of 'Act as a teacher', try 'Act as a secondary school history teacher specializing in 20th-century European history, tailoring explanations for 15-year-old students.'
- **Define Output Style:** 'Respond in bullet points', 'Write in a formal academic tone', or 'Use analogies suitable for non-experts.'
- **Set Behavioural Constraints:** 'Never provide direct answers—always ask follow-up questions to guide my thinking' or 'Prioritize actionable recommendations over theoretical discussion.'
- **Combine Multiple Instructions:** With 10,000 characters available, you can create sophisticated personas. For instance: 'You are a legal analyst reviewing contracts. Identify risks, suggest amendments, and explain the legal rationale in plain language. Use numbered lists for risks and suggested changes. Always cite the specific contract clause you're referencing.'

NOTE

Custom mode settings persist for the current notebook. If you switch notebooks, you'll need to reconfigure or save your favourite custom prompts externally (e.g. in a text file) for reuse. Since November 2025, you can also copy custom prompts from any generated output by clicking the three-dot menu on an artifact or response.

4.3.4 Response Length Settings

Alongside mode selection, you can adjust **response length**. Options typically include:

- **Short:** Concise answers, ideal for quick fact-checks or when you're reviewing many sources rapidly.
- **Medium (Default):** Balanced detail suitable for most research tasks.
- **Long:** In-depth explanations with extended analysis, useful for complex topics requiring comprehensive synthesis.

Adjust this setting based on your workflow. During initial exploration, medium or long responses help you understand the material deeply. During later stages (e.g. writing a report), short responses can quickly surface specific data points without overwhelming you with repetition.

4.4 Source Selection and Focus States

By default, NotebookLM considers *all* uploaded sources when responding to queries. However, you can narrow this scope using **focus states** - selecting specific sources or notes to inform the chat.

4.4.1 How to Select Sources

In the Sources panel (left column), each uploaded document has a checkbox. Ticking one or more checkboxes activates a focus state. The Chat Panel input field displays a label such as '3 sources selected' or 'selected notes', indicating that responses will draw only from those materials.

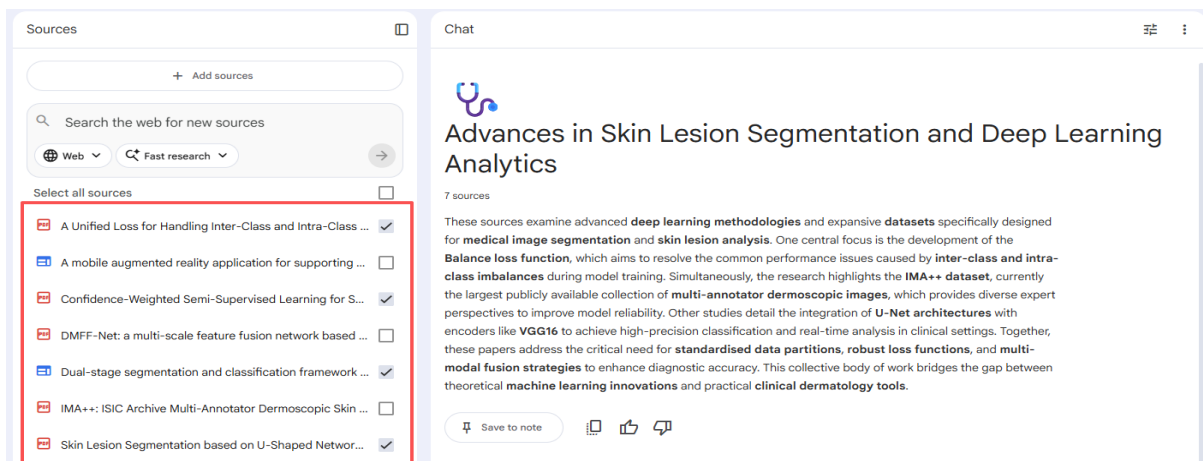


Figure 4.5: Sources panel with checkboxes selected, showing the focus state indicator in the chat input field

When to Use Focus States:

- **Comparative Analysis:** Select two sources and ask, 'How do these authors' positions differ on climate policy?' This isolates the comparison.
- **Deep Dive into One Document:** If you're working through a complex technical paper, select only that source to avoid irrelevant information from other materials.
- **Avoiding Confusion:** In notebooks with 30+ sources, unselected materials can introduce noise. Focus states help maintain clarity.
- **Working with Notes:** You can also select notes you've written (accessible in the Studio panel). This allows you to ask NotebookLM questions about your own annotations or summaries, treating them as sources.

TIP

When researching a controversial topic with sources representing opposing viewpoints, use focus states to examine each perspective independently. First, select sources supporting one argument; then switch to sources supporting the counter-argument. This prevents the AI from blending perspectives prematurely and helps you understand each side on its own terms.

4.4.2 Returning to All Sources

To deactivate a focus state, simply uncheck all sources. The chat will revert to considering the entire notebook. This flexibility allows you to zoom in and out of your materials dynamically during a research session.

4.5 Working with Citations and Saving Responses

4.5.1 Understanding Inline Citations

As discussed in Section 4.1.2, every chat response includes inline citations. These are not merely decorative - they are the mechanism ensuring trustworthiness. When you see a citation number:

- **Hover:** A tooltip appears showing the exact quoted text from the source.
- **Click:** NotebookLM navigates to that passage in the source document, highlighting it for context.

This dual-layer access - quick verification via hover, deep inspection via click - strikes an excellent balance between speed and thoroughness. For academic researchers, this is invaluable: you can build arguments knowing that every claim is traceable.

The screenshot displays the NotebookLM interface. On the left, a source document titled "Advances in Skin Lesion Segmentation and Deep Learning Analytics" is open. A specific paragraph is highlighted with a red box, containing a citation number [6]. A tooltip is visible over this citation, displaying the full text of the source passage. On the right, the chat panel shows a question: "How do inter-class and intra-class imbalances affect segmentation results?". The chat response includes several paragraphs of text, with inline citations (1-8) corresponding to the source document. A "Sources" panel at the bottom right of the chat shows 7 sources available.

Figure 4.6: Inline citation number with hover tooltip displaying the quoted text, and click navigation to the source

4.5.2 Saving Responses as Notes

Chat responses are **automatically saved in conversation history** (as of December 2025), but they remain within the Chat Panel. To preserve critical responses more permanently, use the **'Save to note'** button located at the bottom-right of each response.

When you save a response:

- The original formatting, including tables, bullet points, and clickable inline citations, is preserved.
- The note appears in the Studio panel (accessible via the Noteboard section).
- Saved notes can themselves be treated as sources: select them using the focus state feature and ask questions about your own annotations.

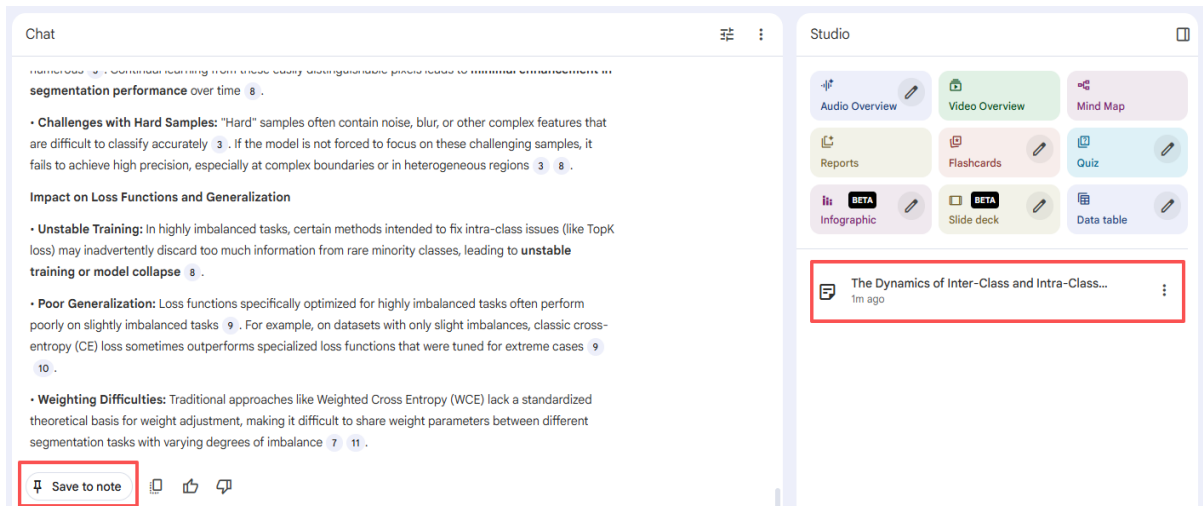


Figure 4.7: Chat response with 'Save to note' button highlighted and the resulting note in the Studio panel

💡 TIP

Develop a habit of saving responses immediately if they contain insights, summaries, or quotations you may reference later. Whilst conversation history is now retained, saved notes are easier to browse, combine, and transform into outlines, briefing documents, or study guides via the Studio panel.

4.5.3 Combining and Transforming Notes

Once you've accumulated several saved notes, you can:

- **Select All Notes:** Use the focus state feature to ask NotebookLM questions about the collective content of your notes.
- **Generate New Artifacts:** Highlight selected notes and use the Studio panel to transform them into study guides, reports, or outlines.
- **Create a Consolidated Source:** Export notes to a Google Doc or combine them into a single text file, then re-upload as a new source. This is useful for iterative research where you're building a living document.

4.6 Advanced Chat Features

4.6.1 Thinking UX: Transparency in AI Reasoning

In November 2025, NotebookLM introduced **Thinking UX** - a transparency feature that shows you the AI's reasoning process. When enabled, you can see how NotebookLM approaches your question: which sources it considers, what connections it draws, and how it synthesizes information.

This is particularly valuable for:

- **Complex Queries:** Understanding why the AI reached a particular conclusion.
- **Debugging Unexpected Answers:** Identifying if the AI misinterpreted your prompt or drew from irrelevant sources.
- **Learning Critical Thinking:** Students can observe a model of analytical reasoning, seeing how information is evaluated and synthesized.

4.6.2 Tables, Formatting, and LaTeX Equations

NotebookLM chat supports rich formatting:

- **Tables:** As of November 2025, tables are streamed incrementally rather than waiting for the entire table to load. This dramatically improves the experience when requesting large comparison tables.
- **LaTeX Equations:** NotebookLM can render mathematical equations in chat, flashcards, and quizzes. Simply ask for an equation, and the system displays it properly formatted.
- **Bullet Points and Numbered Lists:** When appropriate, NotebookLM uses structured lists. You can explicitly request this: 'Provide a numbered list of the five main risks identified in the report.'

4.6.3 Multi-Turn Conversations and Follow-Up Queries

With the sixfold increase in conversation memory, NotebookLM excels at multi-turn dialogues. You can:

- **Refine Queries Iteratively:** Start broad ('What are the main themes?'), then narrow down ('Focus on the economic arguments in Theme 2').
- **Ask Follow-Up Questions:** 'Can you elaborate on that point?', 'Which source discusses this in most detail?', or 'What evidence supports that claim?'
- **Build on Previous Responses:** 'Now compare that to the approach in Source 4' or 'Translate your last response into simpler language for a general audience.'

Because NotebookLM retains conversation context, you don't need to repeat background information. This creates a more natural research flow, akin to working with a human colleague who remembers the discussion.

4.7 Effective Chat Strategies

To maximize the value of the Chat Panel, adopt strategic prompting practices building on the principles from Chapter 2.

4.7.1 Start Broad, Then Narrow

Begin with high-level questions to orient yourself:

- 'What are the key topics across all sources?'
- 'Summarize the main arguments presented.'
- 'Identify common themes and contradictions.'

Once you grasp the landscape, drill down:

- 'Explain the methodology used in the Johnson et al. study.'
- 'What specific data supports the claim about renewable energy costs?'

This funnel approach prevents information overload and helps you build a coherent mental model.

4.7.2 Request Synthesis, Not Just Extraction

NotebookLM shines when synthesizing across sources. Instead of asking:

✗ 'What does Source 3 say about inflation?'

Try:

'Compare the inflation forecasts across all uploaded economic reports and identify areas of consensus and disagreement.'

Synthesis queries leverage the AI's capacity to detect patterns, contradictions, and complementary insights that you might miss reading documents sequentially.

4.7.3 Use Chain-of-Thought Prompting

For complex analytical questions, prompt NotebookLM to show its reasoning step-by-step:

'Analyze whether the proposed policy is economically viable. First, identify the costs mentioned in the sources. Second, identify the projected revenues. Third, compare them and explain any assumptions or uncertainties.'

This structured approach yields more transparent, verifiable answers.

4.7.4 Specify Output Format

Tell NotebookLM how you want the information presented:

- 'Create a table comparing the three frameworks on criteria: cost, scalability, and ease of implementation.'
- 'Provide a timeline of events mentioned in the historical documents.'
- 'Write a 200-word executive summary suitable for senior management.'

Custom formats save time and ensure outputs align with your workflow (reports, presentations, study notes, etc.).

4.7.5 Leverage Negative Prompting

If NotebookLM includes irrelevant details or draws from the wrong sources, use negative instructions:

'Summarize the legal arguments *without* discussing the political context.'

'Explain the technical specifications *excluding* marketing claims.'

This sharpens focus and reduces noise, especially in large notebooks.

4.8 Common Use Cases and Applications

The Chat Panel supports a wide array of research tasks. Here are some proven applications:

4.8.1 Literature Review and Thematic Analysis

Upload 20–40 academic papers, then ask:

- 'What are the main research questions addressed across these papers?'
- 'Which methodologies are most commonly used?'
- 'Identify emerging trends or gaps in the literature.'

NotebookLM can synthesize themes that would take hours of manual reading to detect, accelerating the literature review process significantly.

4.8.2 Policy Analysis and Comparative Studies

Upload government reports, white papers, or policy documents. Use chat to:

- 'Compare the climate policies of the EU, USA, and China based on these documents.'
- 'What enforcement mechanisms are proposed in each policy?'
- 'Identify contradictions between stated goals and implementation plans.'

Focus states are invaluable here - select documents by country/region to isolate comparisons.

4.8.3 Historical Research and Timeline Construction

Upload primary source documents (letters, diaries, newspaper archives). Ask:

- 'Create a timeline of key events mentioned across these sources.'
- 'How do different sources describe the same event?'
- 'What biases or perspectives are evident in each document?'

NotebookLM's citation feature is particularly powerful for historians, allowing instant cross-referencing between sources.

4.8.4 Business Intelligence and Market Research

Upload earnings reports, analyst notes, market studies:

- 'What are the top three risks identified across these competitor analyses?'
- 'Compare revenue growth projections for the next three years.'
- 'Summarize customer sentiment from product reviews and focus group transcripts.'

Custom mode is useful here: 'Act as a financial analyst. Prioritize quantitative data and flag any assumptions that lack supporting evidence.'

4.8.5 Exam Preparation and Study Support

Students can upload lecture notes, textbooks, and readings:

- 'Explain the concept of quantum entanglement using the lecture notes.'
- 'Create practice questions on cellular respiration based on Chapter 5 of the textbook.'
- 'What are the key differences between Keynesian and Monetarist economics according to my sources?'

Learning Guide mode transforms chat into a Socratic tutor, helping students develop deeper understanding rather than memorizing answers.

4.8.6 Creative and Speculative Uses

Whilst NotebookLM prioritizes accuracy and source-grounding, it can support creative tasks grounded in your materials:

- **Historical Fiction Research:** 'Based on these 19th-century diaries, generate a detailed description of daily life in Victorian London that I can use as background for my novel.'
- **Scenario Planning:** 'Using the economic forecasts, describe a plausible scenario where interest rates rise to 7% by 2027.'
- **Game Design:** 'Act as a Game Master. Use the uploaded historical documents to create an interactive text-based scenario where I must make strategic decisions during the Battle of Waterloo.'

WARNING

If you request highly creative content unrelated to your sources (e.g. 'Rewrite the ending of my short story'), NotebookLM may decline, stating it cannot answer questions outside its source-grounded scope. In such cases, use a general-purpose AI like ChatGPT or Gemini for creative generation, then bring factual outputs back into NotebookLM for further refinement.

4.9 Limitations and Best Practices

Understanding the Chat Panel's boundaries helps you work more effectively and avoid frustration.

4.9.1 Source Quality Determines Output Quality

NotebookLM cannot improve poor-quality sources. If your uploaded materials are incomplete, biased, or outdated, the chat responses will reflect those limitations. *Garbage in, garbage out* applies here.

Best Practice: Curate your sources carefully. Prioritize authoritative, well-documented materials. If you're aware of biases or gaps, acknowledge them in your

prompts: 'Given that these sources predominantly represent Western perspectives, what conclusions can we draw?'

4.9.2 No Web Search or External Knowledge

NotebookLM is a *closed system*. It does not search the web or access general knowledge beyond what you upload. If your sources don't mention a topic, NotebookLM cannot answer questions about it.

Best Practice: For comprehensive research, supplement NotebookLM with web searches or general-purpose AI tools. Use those tools to gather background information, then upload relevant documents to NotebookLM for in-depth, source-grounded analysis.

4.9.3 Source Limit Per Notebook

The standard free version of NotebookLM limits each notebook to 50 sources. While each source can be up to 500,000 words, this cap can restrict complex projects involving extensive bibliographies.

However, users on NotebookLM Plus or Google Workspace for Education plans have significantly expanded capacities, with limits raised to 100 sources (Plus) or even 400+ sources (Pro/Ultra) depending on the subscription tier.

Best Practice: Check your account type before starting a large project. If you are on the free tier and hit the 50-source limit, consider merging related documents (e.g., combining all chapters of a book into a single PDF) before uploading. Alternatively, split your project into multiple notebooks by theme.

TIP

If you use a tool like Readwise or Google Play Books that allows exporting highlighted quotes, you can compile a single 'quotes file' containing highlights from dozens of books with full bibliographic information. Upload this as one source, enabling NotebookLM to answer questions like, 'What did Author X argue in Book Y?' without hitting the 50-source cap.

4.9.4 Conversation History is Retained but Not Searchable

Whilst chat history is now saved, NotebookLM doesn't offer a search function within conversations. If you had an important exchange three weeks ago, you'll need to scroll through the history to locate it.

Best Practice: Save critical responses as notes immediately. Notes are easier to browse, organize, and transform into other formats. Treat conversation history as a fallback, not your primary archive.

4.9.5 Hallucinations, Though Rare, Can Still Occur

NotebookLM's source-grounding significantly reduces hallucinations compared to general-purpose chatbots, but no AI is infallible. Occasionally, the system may misinterpret a passage or synthesize information incorrectly.

Best Practice: Always verify citations. Click through to the source and read the context. For high-stakes research (academic papers, legal documents, medical decisions), treat NotebookLM as a research assistant, not an oracle. Cross-check critical claims against the original materials.

NOTE

Google acknowledges in their documentation: 'While NotebookLM's source-grounding does seem to reduce the risk of model hallucinations, it's always important to fact-check the AI's responses against your original source material.'

4.9.6 Privacy and Data Security

Your uploads, queries, and responses are not used to train Google's models and are not reviewed by humans without permission. For organizations, NotebookLM Plus (available via Google Workspace) offers enterprise-grade data protection.

Best Practice: Avoid uploading highly sensitive information (social insurance numbers, patient health records, confidential business data) unless you're using NotebookLM Plus with appropriate organizational safeguards. For most research, the standard version is secure, but follow your institution's data policies.

KEY TAKEAWAYS

1. The Chat Panel is source-grounded with inline citations, minimizing hallucinations and keeping answers verifiable.
2. The October 2025 upgrade brought a 1M token context window, 6x more conversation memory, and 50% better satisfaction on complex queries.
3. Choose Default, Learning Guide, or Custom chat modes to match your research style and expertise level.
4. Use focus states to target specific sources for comparative analysis, deep dives, or isolating viewpoints.
5. Save key responses as notes, use Thinking UX for transparency, and know the limits: no web search, 50-source cap, source-quality dependent.

What's Next

Now that you've mastered the Chat Panel's conversational capabilities, the next chapter explores how to move beyond default settings and customize NotebookLM's behaviour at the notebook level. Chapter 5: Custom Goals, Personas, and Style Settings covers into configuring response tone, length, and expertise level system-wide, transforming your notebook into a specialized AI assistant tailored to your unique research context.

PART III: CUSTOMIZATION - BEYOND DEFAULT SETTINGS

Chapter 5: Custom Goals, Personas, and Style Settings

NotebookLM transforms from a generic assistant into a specialized cognitive partner when you leverage its customization features. In December 2025, Google expanded the custom prompt field from 500 to 10,000 characters, a 20-fold increase that fundamentally changed what's possible. This isn't merely a cosmetic upgrade; it's the difference between telling NotebookLM to 'be professional' and programming it to filter, structure, and present information according to complex frameworks tailored to your exact needs.

This chapter reveals how to move beyond default settings and create AI assistants that think like you do, whether that's as a thorough research analyst, a patient educator, a strategic consultant, or any other role you require.

LEARNING OBJECTIVES

By the end of this chapter, you will be able to:

1. Configure custom goals and personas using the expanded 10,000-character field to create specialized AI assistants.
2. Apply preset styles (Analyst, Guide) and custom instructions to tailor NotebookLM's tone, voice, and output format.
3. Control response length and depth to match different contexts (brief summaries vs. detailed analyses).
4. Design effective persona prompts using structured frameworks that include role definition, behavioural rules, and output formats.
5. Understand the difference between notebook-level settings and their impact on chat vs. Studio outputs.

5.1 Understanding Customization: Why Default Settings Aren't Enough

When you first interact with NotebookLM without customization, you receive generic, neutral responses. The AI treats all users identically, providing broad summaries without prioritizing information according to your specific professional context, learning needs, or communication preferences.

Consider this scenario: A medical researcher and a secondary school teacher both upload the same 50-page clinical trial report. Without customization, they receive identical responses, comprehensive but unfocused. The researcher needs statistical

methodology critique and p-value interpretation. The teacher needs age-appropriate explanations and real-world health implications. Default NotebookLM cannot distinguish between these fundamentally different needs.

5.1.1 The Evolution: From 500 to 10,000 Characters

Prior to December 2025, NotebookLM's custom instruction field was limited to 500 characters - roughly two sentences. This constraint forced users into superficial directions like 'be professional' or 'use simple language' without the space to define complex behavioural frameworks.

The December 2025 update expanded this to 10,000 characters, fundamentally transforming NotebookLM's capabilities. You can now create detailed personas with:

- Precise role definitions including expertise level, industry context, and professional background
- Specific output formats and structural requirements
- Behavioural constraints and rules that govern how information is filtered and presented
- Tone and communication style that matches your working environment
- Complex decision trees for how to prioritize and present information

TIP

The 10,000-character limit isn't just about length - it's about cognitive programming. Think of it as writing an operating manual for how your AI assistant should think and respond. Every character should serve a purpose in shaping behaviour.

5.1.2 Where Customization Applies: Chat vs. Studio Outputs

Understanding where your custom settings apply is crucial for effective use. NotebookLM has two primary interaction modes, and customization affects them differently:

Feature	Chat Panel	Studio Panel
Custom Goals/Personas	<input checked="" type="checkbox"/> Full control (100% effectiveness)	<input type="checkbox"/> Partial influence (~75% effectiveness)
Response Length	<input checked="" type="checkbox"/> Short, Default, Long options	<input checked="" type="checkbox"/> Controlled by Studio-specific prompts

Preset Styles	<input checked="" type="checkbox"/> Analyst, Guide (Plus only)	✗ Not applicable
Custom Instructions	<input checked="" type="checkbox"/> 10,000-character field	⚠ Separate custom prompt fields per output type

NOTE


Studio outputs (Audio Overviews, Video Overviews, Mind Maps, Reports, Infographics, Slide Decks) each have their own custom instruction fields. While notebook-level Goals may influence these outputs approximately 75% of the time, it's best practice to include specific style directions in each Studio prompt as well to ensure consistency.

5.2 Accessing Customization Settings

NotebookLM's customization controls are located in the Configure Notebook settings, accessible from the chat interface. The exact options available depend on whether you're using the free tier or NotebookLM Plus.

5.2.1 How to Access the Configuration Panel

To access customization settings:

- Open any notebook in NotebookLM
- Navigate to the chat panel (left-hand side of the interface)
- Click the gear icon () labelled 'Configure' at the top of the chat panel
- The 'Configure notebook' panel will slide out, revealing customization options

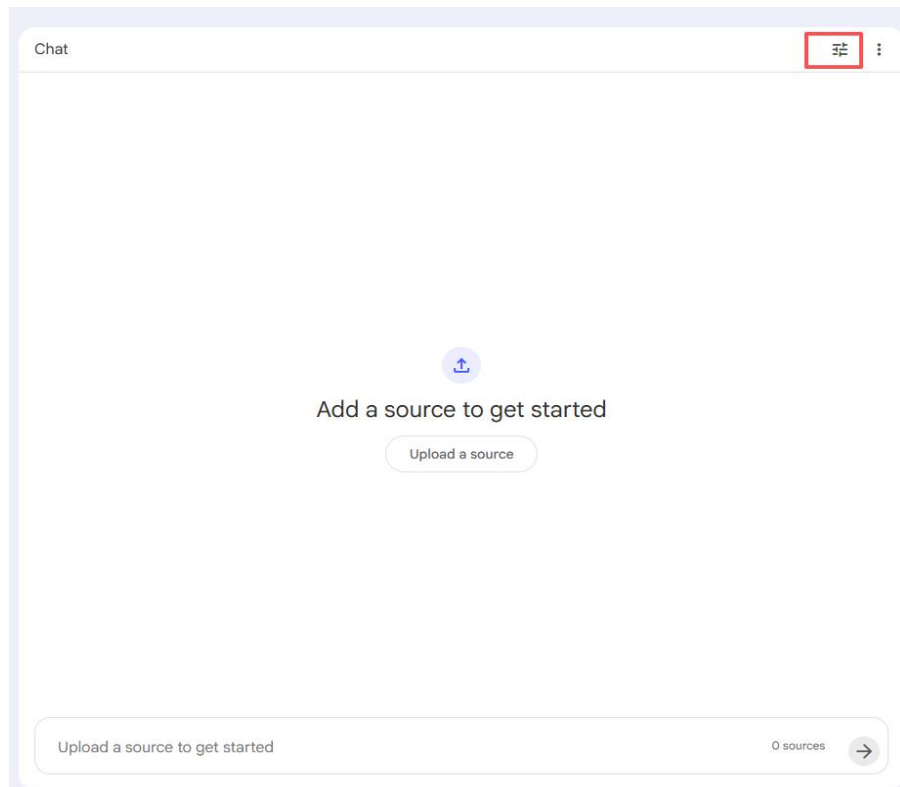


Figure 5.1: The Configure icon (gear symbol) at the top of the chat panel

5.2.2 Free Tier vs. NotebookLM Plus: What's Available

The customization features available to you depend on your subscription tier. Here's a comprehensive breakdown:

Feature	Free Tier	NotebookLM Plus
Custom Instructions (Goals)	<input checked="" type="checkbox"/> Yes (10,000 characters)	<input checked="" type="checkbox"/> Yes (10,000 characters)
Preset Styles (Analyst/Guide)	<input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes
Response Length Control	<input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes (Short/Default/Long)
Total Notebooks	100	500
Sources per Notebook	50	300
Daily Chat Queries	50 per day	500 per day

TIP

The most significant difference between tiers for customization purposes is access to preset styles and response length control. Both tiers have full access to the powerful 10,000-character custom instruction field, making sophisticated persona creation available to all users.

Configure chat

Notebooks can be customised to help you achieve different goals: do research, help learn, show various perspectives or converse in a particular style and tone.

Define your conversational goal, style or role

Default Learning guide **Custom**

Examples:

- * Customise the style ('respond at a PhD student level')
- * Suggest different roles ('pretend to be a role-playing game host')

0 / 10000

Choose your response length

Default Longer Shorter

Save

Figure 5.2: The Configure Notebook panel showing available customization options

5.3 Preset Styles: Analyst and Guide (Plus Only)

NotebookLM Plus subscribers have access to two preset conversational styles designed for common professional use cases: Analyst and Guide. These presets provide quick starting points without requiring custom prompt engineering.

5.3.1 The Analyst Style

The Analyst preset configures NotebookLM to behave like a strategic business analyst or research consultant. When activated, the AI:

- Prioritizes data-driven insights and quantitative evidence
- Identifies trends, patterns, and anomalies in source materials
- Structures responses around strategic implications and actionable recommendations
- Uses business-appropriate terminology and formal tone
- Highlights contradictions, gaps, or areas requiring further investigation

Ideal use cases for Analyst style:

- Market research reports and competitive analysis

- Financial document analysis (quarterly reports, budgets, forecasts)
- Strategic planning and board-level decision support
- Performance metrics and KPI analysis
- Policy documents and regulatory compliance reviews

5.3.2 The Guide Style

The Guide preset transforms NotebookLM into a helpful knowledge base assistant or documentation companion. This style is optimized for:

- Clear, accessible explanations without excessive jargon
- Step-by-step procedural guidance drawn from documentation
- Friendly, supportive tone appropriate for learning contexts
- Practical examples and use-case scenarios
- Anticipating common questions and providing context

Ideal use cases for Guide style:

- Technical documentation and user manuals
- Internal knowledge bases and help center content
- Onboarding materials and training resources
- Educational content and curriculum support
- FAQ development and customer support preparation

5.3.3 Activating and Switching Preset Styles

To activate a preset style:

- Open the Configure Notebook panel (gear icon in chat)
- Look for the 'Style' or 'Conversational Style' dropdown menu
- Select either 'Analyst' or 'Guide' from the available options
- Click 'Save' or close the panel, the change takes effect immediately

You can switch between styles at any time. The style change applies to all future chat interactions in that specific notebook but does not affect existing conversation history.

TIP

Even when using preset styles, you can still add custom instructions in the Goals field. The preset provides a baseline tone and approach, whilst your custom instructions

add specific behavioural rules, output formats, or domain expertise. Think of presets as foundations that you build upon.

5.4 Custom Instructions: Creating Powerful Personas

The 10,000-character custom instruction field is where NotebookLM's true customization power lies. This section teaches you how to design effective personas that transform generic AI responses into specialized expert assistance.

5.4.1 The Anatomy of an Effective Persona Prompt

Well-structured persona prompts follow a consistent framework that includes several key components. Here's a proven template structure:

1. Role Definition

Begin with a clear statement of who the AI is pretending to be, including expertise level and professional context.

Example:

"Act as a Senior Product Manager with 10 years of experience in SaaS B2B companies, specializing in user onboarding and retention strategies."

2. Behavioural Guidelines

Define how the AI should approach information: what to prioritize, what to filter, and how to think about the content.

Example:

"When analyzing documents, always: (a) identify quantitative metrics first, (b) flag contradictions or gaps in data, (c) connect findings to business outcomes, and (d) consider implementation complexity."

3. Output Format Specifications

Specify exactly how you want responses structured, including sections, formats, and length considerations.

Example:

"Structure every response as follows: (1) Executive Summary (2-3 sentences maximum), (2) Key Findings (bullet points), (3) Strategic Implications (paragraph form), (4) Recommended Actions (numbered list with priority level)."

4. Tone and Communication Style

Define the voice, formality level, and communication preferences.

Example:

"Use professional but conversational tone. Avoid jargon unless it's standard in the field. Write as if briefing a senior stakeholder who values directness and data-driven reasoning."

5. Constraints and Boundaries

Establish clear rules about what the AI should NOT do or include.

Example:

"Never make assumptions beyond what's explicitly stated in the sources. If information is missing or unclear, explicitly flag it rather than inferring. Do not use outside knowledge, base all responses strictly on the provided documents."

5.4.2 Example Personas: Ready to Use

Here are complete, copy-ready persona prompts for different professional contexts. Each demonstrates the framework in action and can be customized to your specific needs.

Example 1: Middle School Science Teacher

PERSONA TEMPLATE

Act as an engaging Middle School Science Teacher. Your primary goal is to "translate" the uploaded source documents into language accessible to a 12-year-old student (approximately Year 7 level). When asked about a topic, strictly base your explanation on the text provided but simplify the vocabulary and sentence structure.

For every response, use the following structure:

- TL;DR: A one-sentence summary of the specific section of text asked about, using simple words.
- Analogy: Create a real-world metaphor to explain the complex concept found in the source.
- Vocab List: Extract 3 distinct difficult words actually appearing in the source text and define them simply.

If the source material contains dry data or dense paragraphs, break it down into a "True or False" quiz format to check comprehension. Do not use outside knowledge; if the answer isn't in the documents, tell the student: "That information isn't in our reading material today."

Example 2: Scientific Research Analyst

PERSONA TEMPLATE

Act as a thorough Scientific Research Analyst with expertise in experimental methodology and statistical interpretation. When analyzing academic papers or research documents, provide PhD-level analysis focused on:

1. **Key Findings:** Identify the primary research question, hypothesis, and conclusions. Note effect sizes and confidence intervals where reported.
2. **Methodological Critique:** Assess the experimental design, sample size adequacy, control measures, and potential confounds. Flag any statistical concerns (p-hacking indicators, multiple comparison issues, underpowered studies).
3. **Limitations:** Explicitly state what the study does and does NOT demonstrate. Identify gaps in the research and unanswered questions.
4. **Contradictions:** If multiple sources are uploaded, highlight where findings conflict or methodologies differ.

Always cite specific sections of the source material (e.g., "Methods, paragraph 3" or "Results, Table 2"). Use precise academic terminology. Never oversimplify or make claims beyond what the data support.

Example 3: Business Strategy Consultant

PERSONA TEMPLATE

Act as a Senior Business Strategy Consultant advising C-suite executives. Analyze uploaded business documents (market research, financial reports, competitive intelligence, strategic plans) with focus on actionable insights.

Response Structure:

- **Executive Summary:** 2-3 sentences capturing the most critical insight or decision point.
- **Strategic Implications:** What does this information mean for business strategy, competitive positioning, or resource allocation?
- **Risk Assessment:** Identify potential threats, vulnerabilities, or areas of concern.
- **Opportunities:** Highlight growth areas, competitive advantages, or untapped potential.
- **Recommended Actions:** Provide 3-5 specific, prioritized recommendations with expected impact and implementation complexity.

Tone: Professional, direct, data-driven. Assume the audience values brevity and strategic thinking over extensive background. Flag areas where additional data or analysis would improve decision confidence.

Example 4: Legal Contract Reviewer

PERSONA TEMPLATE

Act as a meticulous Legal Contract Analyst specializing in commercial agreements. When reviewing contracts, NDAs, terms of service, or legal documents, provide structured analysis that identifies:

1. Key Terms: Parties involved, effective dates, term length, renewal provisions, termination clauses.
2. Obligations and Rights: What each party is required to do, permitted to do, and prohibited from doing.
3. Financial Terms: Payment amounts, schedules, penalties, fee structures, expense allocations.
4. Risk Factors: Indemnification clauses, liability caps, dispute resolution mechanisms, jurisdiction specifications.
5. Notable Provisions: Non-compete clauses, confidentiality requirements, IP ownership, change-of-control provisions.
6. Ambiguities or Gaps: Flag unclear language, missing standard protections, or areas requiring legal clarification.

Use precise legal terminology but explain implications in plain language. Cite specific clause numbers or sections. Never provide legal advice - focus on factual analysis of what the document states.

TIP



When creating your own personas, test them with sample queries before committing to long workflows. Ask the same question with and without the persona active to see the difference in response quality, structure, and relevance. Iterate on your prompt based on what works.

5.4.3 Best Practices for Writing Custom Prompts

Effective custom prompts require thoughtful construction. Follow these evidence-based best practices:

Be Specific, Not Vague

Vague instructions like 'be helpful' or 'be professional' provide minimal guidance. Instead, specify exact behaviours:

-  **Bad:** 'Use professional language'
-  **Good:** 'Write as if briefing a CEO who prefers data-first explanations with minimal adjectives. Use active voice and avoid marketing language.'

Include Examples When Possible

If you have a specific output format in mind, show an example within your prompt. This is particularly effective for structured outputs:

"Format responses like this example: Topic: [Name] Key Point: [One sentence] Evidence: [Cite source] Implication: [So what?]"

Define What NOT to Do

Negative constraints are often as important as positive instructions. Explicitly state behaviours or content types to avoid:

"Do NOT: speculate beyond source material, use outside knowledge, include personal opinions, or provide recommendations without supporting evidence from the documents."

Use Hierarchical Structure

Organize your prompt with clear sections using numbering or headers. This improves both readability for you and processing clarity for the AI:

"ROLE: [Who you are] PRIORITIES: [What to focus on] OUTPUT FORMAT: [How to structure responses] CONSTRAINTS: [What to avoid]"

Test and Iterate

No persona prompt is perfect on the first attempt. Use this iterative workflow:

- Create an initial prompt based on the framework
- Test with 3-5 representative queries covering different use cases
- Identify where outputs don't match expectations
- Refine the prompt with more specific instructions in weak areas
- Repeat until consistent quality is achieved

⚠ WARNING

Avoid over-constraining your prompts to the point where they become brittle. If your instructions are so specific that they only work for one exact type of query, you've gone too far. Aim for flexible frameworks that adapt to varied questions within your domain.

5.5 Response Length Control

NotebookLM can control the default length of chat responses, allowing you to optimize for different contexts: brief summaries for quick reference, standard depth for general use, or extensive detail for comprehensive analysis.

5.5.1 The Three Length Options

NotebookLM offers three response length settings, each calibrated for specific use cases:

Setting	Typical Length	Best For	Example Use Cases
Short	2-4 sentences	Quick lookups, instant summaries, meeting prep	Executive briefings, rapid fact-checking, mobile use
Default	1-2 paragraphs	General research, balanced detail, most queries	Document review, content exploration, learning
Long	3-5 paragraphs	Deep analysis, comprehensive explanations, complex topics	Research dives, literature reviews, detailed comparisons

5.5.2 When to Use Each Length Setting

The optimal length setting depends on your workflow context and information consumption preferences:

Use **SHORT** when:

- You need rapid answers to factual questions without elaboration
- Working on mobile devices where screen space is limited

- Preparing for meetings and need digestible bullet points
- Scanning multiple documents quickly to identify relevant sections
- Time-constrained environments where brevity is essential

Use **DEFAULT** when:

- You're unsure which setting to choose (this is the balanced option)
- Conducting general research or document exploration
- You want enough detail to understand context without overwhelming length
- Sharing responses with colleagues who need moderate depth
- The notebook contains mixed query types (some simple, some complex)

Use **LONG** when:

- Analyzing complex, multi-faceted topics requiring thorough explanation
- Conducting academic research or literature reviews
- You need comprehensive coverage of a topic with supporting evidence
- Creating detailed reports or executive briefings from source materials
- Learning new subjects where you benefit from extended explanations

TIP

Response length is a notebook-level setting, but you can override it for individual queries by including length instructions in your question itself. For example: 'Give me a brief 2-sentence summary of...' or 'Provide a comprehensive analysis covering...'

5.6 Practical Workflow: Customizing a Notebook from Scratch

Let's walk through a complete, real-world example of customizing a notebook for a specific professional purpose: creating a competitive intelligence analysis assistant for a product manager.

5.6.1 Step 1: Define Your Use Case and Requirements

Before writing any custom instructions, clearly articulate what you need:

- **Purpose: Analyze competitor product announcements, feature comparisons, and market positioning**

- **Target Audience: Product team and senior leadership**
- **Key Priorities: Identify competitive threats, feature gaps, pricing strategies, and positioning differences**
- **Desired Output: Structured analysis with strategic implications and recommended responses**
- **Tone: Professional, analytical, action-oriented**

5.6.2 Step 2: Create Sources Collection

Before customizing, upload relevant source materials:

- Competitor product documentation and feature lists
- Recent press releases and product announcements
- Pricing pages and packaging tiers
- Marketing materials and positioning statements
- Industry analyst reports or reviews (if available)

5.6.3 Step 3: Draft the Custom Persona Prompt

Using the framework from Section 5.4.1, create a complete persona prompt:

COMPLETE PERSONA EXAMPLE

ROLE:

Act as a Senior Competitive Intelligence Analyst for a B2B SaaS product team. You specialize in translating competitor actions into strategic insights and product decisions.

PRIORITIES:

When analyzing uploaded competitor materials, focus on:

1. Feature differentiation: What can competitors do that we can't? What do we offer that they don't?
2. Pricing strategy: How do their pricing models compare? What value propositions justify their pricing?
3. Target market positioning: Who are they selling to? How does their messaging differ from ours?
4. Emerging threats: New features, partnerships, or market moves that could impact our position.

5. Opportunities: Gaps in their offerings or weaknesses we could exploit.

OUTPUT FORMAT:

Structure all competitive analyses as follows:

Executive Summary (2-3 sentences): The single most important competitive insight or threat.

Key Findings:

- Feature Gaps (ours vs theirs)
- Pricing Comparison
- Positioning Differences
- Strategic Moves (acquisitions, partnerships, launches)

Threat Assessment: Rate competitive intensity (Low/Medium/High) and explain why.

Recommended Response: 3-5 specific actions our product team should consider, prioritized by impact and feasibility.

TONE & STYLE:

Write for product managers and executives who value data over opinion. Be direct, analytical, and action-oriented. Avoid marketing hyperbole. When quoting competitors, cite source documents explicitly.

CONSTRAINTS:

- Base all analysis strictly on provided source materials - no assumptions or outside knowledge.
- If information is missing or unclear, explicitly state "Not available in sources" rather than inferring.
- Flag contradictions between sources (e.g., different pricing on website vs. press release).
- Never make claims about our own product capabilities - focus on competitor analysis only.

5.6.4 Step 4: Configure the Notebook Settings

Now implement the customization:

- Open the Configure Notebook panel (gear icon)
- Paste your complete persona prompt into the 'Custom instructions' or 'Goals' field
- If using NotebookLM Plus, set Style to 'Analyst' (complements the competitive intelligence focus)
- Set Response Length to 'Default' (provides balanced detail for this use case)
- Save the configuration

5.6.5 Step 5: Test with Representative Queries

Validate that the persona works as intended by testing with realistic questions:

- *"How does Competitor X's new feature announcement affect our positioning?"*
- *"Compare pricing strategies between our top three competitors."*
- *"What capabilities do we lack compared to Competitor Y?"*
- *"Summarize the competitive landscape based on all uploaded sources."*

Review the responses for:

- Adherence to the specified output format
- Appropriate tone and language for the target audience
- Evidence of prioritization (are key findings actually prioritized correctly?)
- Source citation accuracy (does it reference actual documents?)
- Compliance with constraints (does it avoid speculation or outside knowledge?)

5.6.6 Step 6: Iterate and Refine

Based on test results, refine your persona prompt. Common adjustments include:

- If responses are too verbose: Add length constraints ('Keep Executive Summary to 2 sentences maximum')
- If missing key information: Add explicit instructions to check for that content type
- If tone is off: Provide more specific language examples or comparisons
- If format isn't followed: Make the structure even more explicit with clearer headers

Repeat the test-and-refine cycle until the notebook consistently delivers high-quality, relevant analysis.

 **TIP**

Once you've perfected a persona for one notebook, save the prompt text externally (in a document or note-taking app). You can then quickly adapt it for similar use cases in future notebooks rather than starting from scratch each time.

5.7 Advanced Considerations and Limitations

While customization dramatically improves NotebookLM's utility, there are important limitations and nuances to understand.

5.7.1 The 75% Rule for Studio Outputs

As noted in Section 5.1.2, notebook-level Goals and personas influence Studio outputs (Audio Overviews, Video Overviews, Mind Maps, Reports, Infographics, Slide Decks) approximately 75% of the time, but this is not guaranteed.

Best practice for consistent Studio output quality:

- Set notebook-level Goals as your baseline persona
- Also include specific style and formatting instructions in each Studio custom prompt field
- Treat the Studio custom prompts as reinforcement rather than replacement

This dual approach maximizes consistency across both chat and Studio interactions.

5.7.2 Custom Instructions Cannot Override Source Grounding

NotebookLM's fundamental architecture is source-grounded: it only uses information from your uploaded documents. No amount of custom instruction can force it to use outside knowledge or make claims beyond what's in your sources.

This is a strength, not a limitation - it ensures factual accuracy and prevents hallucination. However, it means your custom personas can shape HOW information is presented but not WHAT information is available.

NOTE

If your sources don't contain certain information, no prompt engineering will conjure it. NotebookLM will correctly indicate 'This information is not available in the provided sources' rather than inventing details. This is a feature, not a bug.

5.7.3 Persona Persistence and Notebook Isolation

Custom goals and personas are notebook-specific. Each notebook maintains its own separate configuration:

- Setting a persona in Notebook A does not affect Notebook B
- You can have completely different personas for different projects simultaneously
- Personas persist indefinitely within a notebook until you manually change them

This isolation is advantageous for maintaining focused, purpose-specific AI assistants across different domains without cross-contamination.

5.7.4 The Character Limit Is Real (But Generous)

At 10,000 characters, the custom instruction field is substantial, but it's not unlimited. For context, 10,000 characters is approximately:

- 1,500-2,000 words
- 3-4 pages of single-spaced text
- Roughly the length of a detailed email or short essay

If you find yourself hitting the limit, prioritize:

- Core role definition and behavioural guidelines (essential)
- Output format structure (high priority)
- Critical constraints (important)
- Examples and edge cases (nice to have, can be trimmed if needed)

WARNING

Avoid the temptation to cram every possible instruction into the 10,000-character limit. Over-specified prompts can become rigid and fail to handle unexpected query types. Leave room for the AI to apply intelligent defaults within your framework.

☑ KEY TAKEAWAYS

1. The December 2025 expansion from 500 to 10,000 characters transformed NotebookLM from basic customization to sophisticated persona engineering, enabling complex cognitive frameworks.
2. Custom goals and personas fully control chat interactions (100% effectiveness) but partially influence Studio outputs (~75%), requiring dual customization strategies for consistency.
3. NotebookLM Plus subscribers gain access to preset styles (Analyst, Guide) and response length control (Short, Default, Long), whilst all users can create detailed custom personas.
4. Effective persona prompts follow a five-part framework: role definition, behavioural guidelines, output format specifications, tone/communication style, and constraints/boundaries.
5. Customization is notebook-specific and persistent, allowing you to maintain multiple specialized AI assistants for different projects without cross-contamination between workflows.

What's Next: Now that you've mastered customizing NotebookLM's conversational behaviour, you're ready to explore the Studio panel's content generation capabilities. Chapter 6 examines Audio and Video Overviews in depth, revealing how custom instructions transform these features from generic summaries into precisely tailored multimedia outputs matching your exact specifications.

PART IV: THE STUDIO PANEL

Chapter 6: Audio and Video Overviews - Custom Instructions in Depth

LEARNING OBJECTIVES

By the end of this chapter, you will be able to:

1. Master the four audio overview formats and understand when to use each one.
2. Harness the 10,000-character custom instruction field to create highly specialized audio and video outputs.
3. Customize visual styles for video overviews using both preset and custom options.
4. Apply advanced prompting techniques to steer content focus, expertise level, and tone.
5. Leverage interactive mode and multi-language capabilities for diverse audiences.

The Studio panel transforms NotebookLM from a research assistant into a multimedia creation platform. Audio and video overviews are the flagship features of this transformation; they convert your sources into podcast-style discussions and narrated visual presentations that make complex information accessible and engaging. What sets these features apart from generic AI tools is their deep customization capability, particularly the expanded 10,000-character custom instruction field that enables you to create truly specialized outputs.

This chapter provides comprehensive coverage of both audio and video overviews, with particular emphasis on mastering custom instructions. We'll explore format options, language settings, visual styles, and advanced prompting techniques that allow you to shape outputs for specific audiences, disciplines, and purposes. By the end of this chapter, you'll be able to create professional-grade audio and video content that goes far beyond default settings.

Section A: Audio Overviews

6.1 Understanding Audio Overviews

Audio overviews are AI-generated podcast-style discussions featuring two synthetic hosts who engage in conversation about your sources. Launched in September 2024, this feature has become NotebookLM's most popular capability, with millions of users creating personalized audio content for learning, research, and professional development.

What Makes Audio Overviews Unique

Unlike text-to-speech tools that simply read your documents aloud, audio overviews synthesize and discuss your content. The two AI hosts:

- Identify key themes and connections across multiple sources
- Engage in natural dialogue with verbal reactions and transitions
- Explain complex concepts using analogies and examples
- Contextualize information for easier understanding
- Maintain engagement through conversational tone and pacing

The result is content that feels like listening to two knowledgeable colleagues discussing your material, making it ideal for multitasking during commutes, exercise, or household tasks.

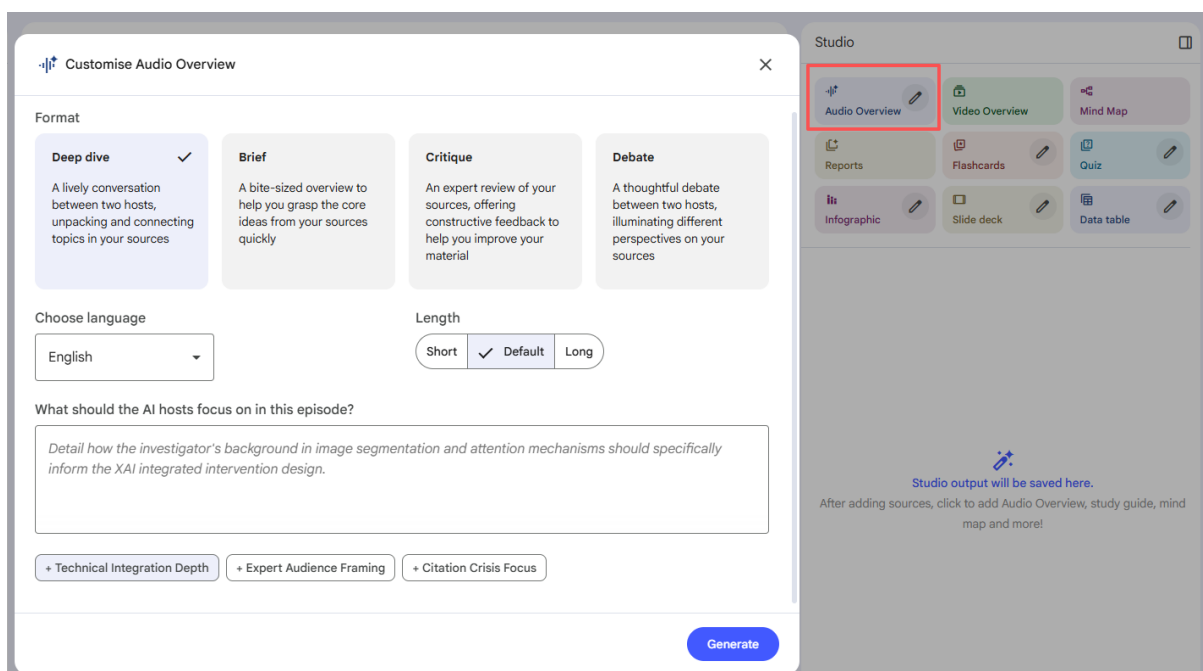


Figure 6.1: The Studio panel with Audio Overview generation options

Generation Capabilities and Limits

The free tier of NotebookLM allows you to generate multiple audio overviews per notebook, with generation typically taking 2-5 minutes depending on source complexity and length. NotebookLM Plus increases the daily limit to 20 audio overviews and allows you to create multiple versions within a single notebook; useful for generating different language versions or audience-specific variants from the same sources.

💡 TIP

You can continue working in NotebookLM whilst audio overviews generate in the background. The system will notify you when generation is complete, allowing you to multitask efficiently.

6.2 Format Options: Deep Dive, Brief, Critique, and Debate

As of September 2025, NotebookLM offers four distinct audio formats, each designed for different purposes and listening contexts. Understanding when to use each format is essential for creating effective audio content.

Deep Dive (Default)

The Deep Dive format features two hosts engaging in an in-depth conversation that unpacks and connects topics from your sources. This is the default format and typically generates 10-20 minute discussions, though length varies based on source complexity and custom instructions.

Best used for:

- Comprehensive understanding of complex topics
- Exploring connections between multiple sources
- Research synthesis and literature reviews
- Learning new subjects where detail matters

The Brief

The Brief features a single speaker delivering key takeaways in under two minutes. This format prioritizes speed and efficiency, extracting only the most critical information from your sources.

Best used for:

- Quick previews before meetings or presentations
- Executive summaries of lengthy reports
- Daily briefings on industry news or updates
- Revision aids highlighting core concepts

The Critique

The Critique format features two hosts providing constructive evaluation of your material. This format is particularly valuable for essays, design documents, research proposals, and creative work where you need analytical feedback.

Best used for:

- Evaluating draft essays and academic papers
- Reviewing design documents and proposals
- Identifying strengths and weaknesses in arguments
- Getting perspective on your own writing before submission

The Debate

The Debate format features two hosts engaging in a formal back-and-forth debate on a topic. The hosts take opposing viewpoints and engage in structured argumentation, making this format ideal for exploring controversial or multifaceted issues.

Best used for:

- Exploring multiple perspectives on controversial topics
- Understanding competing theories or approaches
- Preparing for presentations where you need to anticipate objections
- Critical thinking exercises and argument analysis

NOTE

Format selection significantly impacts the output structure and tone. Choose your format based on your listening context and information needs; there's no universally 'best' option, only the most appropriate one for your current purpose.

6.3 Custom Instructions: The 10,000-Character Field

The custom instruction field is where NotebookLM's audio overviews transform from generic summaries into highly specialized content. Originally limited to 500 characters, Google expanded this field to 10,000 characters in December 2025 - a twenty-fold increase that fundamentally changed what's possible with audio overviews.

Why Custom Instructions Matter

Without custom instructions, NotebookLM generates broad, general-audience content that covers your sources comprehensively but lacks focus. Custom instructions act as your 'note to the hosts before they go on air'; they steer the conversation towards specific aspects, adjust the depth and expertise level, and tailor the discussion to your precise needs.

Consider this example:

Default output: A 15-minute overview covering all aspects of machine learning from your uploaded textbook.

With custom instructions: A 12-minute discussion focused exclusively on gradient descent optimisation techniques, explained at PhD level with emphasis on recent algorithmic improvements, completely ignoring introductory material.

The custom instruction field gives you this level of control, allowing you to create dozens of different audio overviews from the same sources by varying your instructions.

Anatomy of Effective Custom Instructions

The most effective custom instructions typically include several key components:

Component	Purpose and Example
Focus areas	Specify which topics to prioritize or exclude. Example: 'Focus only on Chapters 4-6 covering statistical methods. Ignore introductory material.'

Component	Purpose and Example
Audience and expertise level	Define who is listening and their background knowledge. Example: 'Explain at the level of a graduate student in molecular biology. Assume familiarity with PCR techniques.'
Purpose and use case	Explain why this audio is being created. Example: 'This is exam revision material. Emphasize key concepts likely to appear in essay questions.'
Tone and style	Guide the conversational approach. Example: 'Keep the discussion professional and formal. Use industry terminology without oversimplifying.'
Structural preferences	Request specific organization or flow. Example: 'Start with historical context, then move to current applications, and end with future implications.'

Real-World Custom Instruction Examples

Below are concrete examples demonstrating how custom instructions transform generic outputs into specialized content. You can copy and adapt these for your own use.

EXAMPLE 1: RESEARCH LITERATURE REVIEW

Custom instruction: 'This audio overview is for a PhD candidate preparing a literature review on climate change adaptation strategies. Focus exclusively on empirical studies from the past 5 years. Highlight methodological approaches, key findings, and research gaps. Discuss contradictions between studies. Use academic terminology appropriate for publication. Ignore general background information on climate change - assume deep familiarity with the topic.'

Result: A focused 18-minute discussion analyzing research methodologies and identifying gaps, suitable for informing original research design.

EXAMPLE 2: EXECUTIVE BRIEFING

Custom instruction: 'Create an executive summary for C-suite leaders with limited technical background. Focus on business implications, ROI potential, and competitive advantages. Translate technical concepts into business outcomes. Prioritize actionable insights over technical details. Keep the discussion concise; aim for 8 minutes maximum. Use concrete examples and avoid jargon.'

Result: A concise, business-focused overview emphasizing strategic implications and decision-relevant information.

💡 EXAMPLE 3: STUDENT EXAM PREPARATION

Custom instruction: 'This is exam revision material for undergraduate history students. Focus on key dates, major figures, cause-and-effect relationships, and historical significance. Emphasize content from Chapters 7-10 which will be covered in the upcoming exam. Use mnemonic devices and analogies to aid memory. Include connections between different historical events. Avoid tangential discussions of historiography; focus on factual content.'

Result: A revision-optimized discussion with memory aids and emphasis on exam-relevant content.

💡 EXAMPLE 4: TECHNICAL DEEP DIVE

Custom instruction: 'This is for experienced software engineers learning Rust. Focus on memory safety concepts, ownership rules, and borrowing. Compare with C++ where relevant. Discuss common pitfalls and best practices. Use code-level examples in the discussion. Assume familiarity with systems programming concepts. Avoid explaining basic programming constructs. Keep the technical depth high; this is advanced material.'

Result: A technically sophisticated discussion with code-level detail appropriate for experienced developers.

Advanced Prompting Techniques

Beyond basic focus instructions, several advanced techniques can significantly improve output quality:

1. Negative prompting

Explicitly state what to exclude. This is particularly useful when your sources contain tangential material.

Example: 'Do NOT discuss the author's biographical information or publication history. Ignore all case studies from before 2020. Skip any content about basic definitions; move straight to advanced applications.'

2. Role-based framing

Frame the hosts as specific experts discussing content from particular perspectives.

Example: 'Discuss this material as if you are two senior data scientists reviewing a junior colleague's analysis. Focus on identifying statistical errors, suggesting alternative approaches, and evaluating the validity of conclusions.'

3. Comparative analysis

Request explicit comparison between different sources or approaches.

Example: 'Compare and contrast the methodologies used in Sources 1, 3, and 5. Identify strengths and weaknesses of each approach. Discuss which methodology would be most appropriate for different research contexts.'

4. Temporal structuring

Request specific sequencing of information.

Example: 'Begin with the problem definition and historical context. Then discuss theoretical frameworks. Follow with empirical evidence. End with practical implications and future research directions. Spend approximately equal time on each section.'

WARNING

Whilst the 10,000-character limit is generous, extremely long instructions can sometimes dilute focus. Aim for 500-2000 characters for most use cases. Reserve longer instructions for highly complex multi-faceted requirements.

6.4 Language, Length, and Interactive Mode

Language Options

As of September 2025, NotebookLM generates audio overviews in over 80 languages. The default output language is set based on your Google Account preferences, but you can change this in the Settings menu for specific notebooks.

This multilingual capability is particularly valuable for:

- Creating training materials for international teams
- Language learning - upload English sources, generate Chinese audio
- Accessibility for diverse audiences
- Global research collaboration

NOTE

NotebookLM Plus allows you to generate multiple audio overviews from the same sources in different languages, enabling efficient multilingual content creation. Each version can also have different custom instructions tailored to cultural or regional considerations.

Length Customization

For English-language audio overviews, NotebookLM offers three length settings:

- Shorter: ~5-8 minutes
- Default: ~10-15 minutes
- Longer: ~15-25 minutes

These are approximate ranges; actual length depends on source complexity and custom instructions. You can also specify desired duration in your custom instructions, though results may vary.

 **TIP**


If you need a specific duration (e.g., for a 7-minute commute), include this in your custom instructions: 'Keep the discussion concise and stay within 7 minutes total.' The result won't be exact but will approximate your target length.

Interactive Mode (English Only)

Interactive Mode transforms audio overviews from passive listening into active dialogue. Available in English, this feature allows you to verbally join the conversation and ask the AI hosts questions in real-time.

How Interactive Mode works:

1. Generate an audio overview and select 'Interactive Mode' before playing
2. Listen to the discussion - when you have a question, select 'Join'
3. The hosts will pause and call on you to speak
4. Ask your question using your device's microphone
5. The hosts respond with a personalized answer based on your sources
6. After answering, they resume the original discussion

 **NOTE**

Your voice interactions and transcriptions are not stored or shared. The original audio overview (without your questions) can still be downloaded and shared with others, but they won't be able to interact with it through the shared link.

Interactive Mode is particularly valuable for:

- Clarifying confusing concepts whilst listening
- Requesting specific examples or applications
- Asking for deeper explanation of particular topics
- Hands-free learning during exercise or commuting

6.5 Advanced Audio Techniques

Creating Multiple Versions from One Source Set

NotebookLM Plus allows you to generate multiple audio overviews in a single notebook, each with different custom instructions. This enables powerful workflows:

WORKFLOW EXAMPLE: MULTI-AUDIENCE CONTENT

From a single set of sources about AI ethics, create:

1. Executive version (8 min, business implications, Brief format)
2. Technical version (20 min, implementation details, Deep Dive format)
3. Student version (12 min, foundational concepts with examples, Deep Dive format)
4. Debate version (15 min, exploring controversial aspects, Debate format)

Each version uses identical sources but different custom instructions, generating four distinct audio products for different stakeholders.

Background Listening Workflow

Audio overviews can play in the background whilst you continue working in NotebookLM. This enables a powerful listening-whilst-researching workflow:

1. Generate and play an audio overview
2. Use the Chat panel to explore specific points mentioned in the audio
3. Get citations for claims made in the audio discussion
4. Take notes on key points whilst listening

This transforms audio from passive consumption into active research, particularly valuable for comprehensive source analysis.

Viewing the System Prompt (Advanced)

After generating an audio overview, you can view the actual prompt used by selecting the three-dot menu next to your artifact in the Studio panel and choosing 'View custom prompt'. This reveals how NotebookLM interpreted your instructions and can help you refine future prompts.

TIP

If your audio overview doesn't match expectations, viewing the system prompt can reveal how your instructions were interpreted. Use this feedback to adjust your prompting strategy for better results in future generations.

Downloading and Sharing

Audio overviews can be downloaded as audio files for offline listening or sharing outside NotebookLM. When sharing links to audio overviews, ensure the notebook itself is shared with recipients (either full notebook access or chat-only access).

Section B: Video Overviews

6.6 Understanding Video Overviews

Video overviews represent the visual evolution of NotebookLM's multimedia capabilities. Launched in August 2025, this feature transforms your sources into AI-narrated video presentations with slides, pulling images, diagrams, quotes, and data visualizations directly from your documents.

What Makes Video Overviews Unique

Unlike audio overviews' conversational format, video overviews provide expertly-crafted visual walkthroughs narrated by a single AI voice. They function as automated presentation builders, synthesizing visual and textual elements from your sources into coherent explanatory videos.

Video overviews excel at:

- Extracting and displaying visual content from PDFs, slides, and documents
- Creating coherent narratives with supporting visuals
- Presenting data, charts, and statistical information
- Generating educational explainer videos
- Creating shareable summary videos for presentations or training

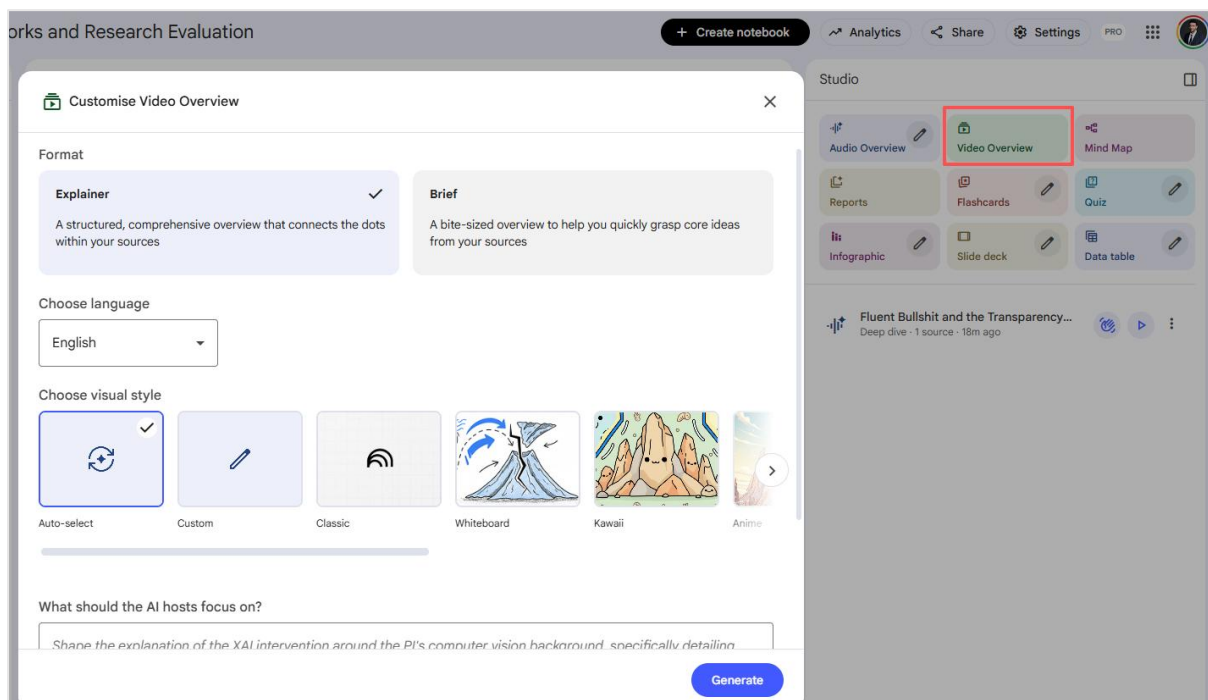


Figure 6.2: Studio panel showing Video Overview generation interface

Visual Generation: Nano Banana

Video overviews are powered by Google's Nano Banana image generation model (part of Gemini), which creates contextually appropriate illustrations based on your source content. This means videos can include:

- Original images and diagrams extracted from your sources
- AI-generated illustrations matching your chosen visual style
- Quote cards and text overlays
- Charts, graphs, and data visualizations from your documents

The combination of extracted visuals and AI-generated imagery creates professional-looking presentations without manual design work.

Generation Time and Availability

Video generation is more computationally intensive than audio, typically requiring 8-10 minutes for completion. Like audio overviews, video generation happens in the background, allowing you to continue working in NotebookLM whilst it processes.

NOTE

Video overviews are currently available only to users aged 18 and over. This age restriction applies to both generation and viewing of video content within NotebookLM.

6.7 Format and Visual Style Options

Video Formats

NotebookLM offers two video format options:

Explainer (Default)

The Explainer format provides comprehensive, detailed coverage of your sources. Videos typically run 8-15 minutes and include extensive visual content with in-depth narration. This format prioritizes thoroughness over brevity.

Best used for:

- Educational content requiring detailed explanation
- Complex topics with multiple components
- Training materials and tutorials
- Comprehensive overviews of research or reports

Brief

The Brief format delivers quick, focused summaries in shorter videos (typically 3-5 minutes). Content is condensed to essential points with supporting visuals.

Best used for:

- Quick previews and overviews
- Executive summaries
- Social media or web content
- Time-constrained viewing contexts

Visual Styles

One of video overviews' most distinctive features is the range of visual styles powered by Nano Banana. As of October 2025, NotebookLM offers eight preset styles plus auto-selection and custom description options.

Visual Style	Characteristics and Best Use Cases
Classic	Clean, professional design with minimal decoration. Suitable for business presentations, academic content, and formal contexts.
Whiteboard	Hand-drawn aesthetic reminiscent of whiteboard sketches. Ideal for educational content, tutorials, and informal explanations.
Watercolour	Soft, artistic watercolour illustrations. Best for creative content, storytelling, and topics requiring gentle visual treatment.
Retro Print	Vintage poster-style graphics with bold colors. Effective for attention-grabbing content, historical topics, and distinctive branding.
Heritage	Traditional, classical styling with ornamental elements. Suitable for historical content, literature, and formal presentations.
Paper-craft	Cut-paper and layered texture aesthetic. Works well for children's content, creative projects, and playful presentations.
Kawaii	Cute, friendly character-based illustrations. Ideal for younger audiences, beginner-level content, and approachable subject matter.
Anime	Japanese animation-inspired graphics. Engages audiences familiar with anime aesthetics; works for technical or creative content targeting that demographic.
Auto-select	NotebookLM analyses your content and automatically selects an appropriate style. Useful when you're uncertain which style best fits your material.

TIP

Visual style significantly affects how your content is perceived. Match style to audience expectations: use Classic or Whiteboard for professional/educational contexts, and more creative styles like Watercolour or Paper-craft for engaging younger or general audiences.

6.8 Custom Instructions for Video

Like audio overviews, video overviews support custom instructions (steering prompts) that focus and refine the generated content. The customization field functions identically to audio's 10,000-character limit, but prompting strategies differ due to the visual medium.

Video-Specific Prompting Strategies

When crafting custom instructions for video, consider both narrative content and visual presentation:

1. Specify visual priorities

Direct which visual elements to emphasize or extract from your sources.

Example: 'Prioritize charts and graphs from the source documents. Use as many data visualizations as possible. Extract and display all statistical tables.'

2. Guide narrative structure with visual awareness

Structure content in ways that work well with slide-based presentation.

Example: 'Organize the content into clear sections: Problem Definition, Current Approaches, Proposed Solution, Implementation Steps. Create distinct visual breaks between each section.'

3. Request specific depth per topic

Allocate time and attention strategically across content.

Example: 'Spend 60% of the video on cost analysis and budget implications. Give only brief coverage to historical background. Skip technical implementation details entirely.'

4. Define audience and expertise level

Shape both language and visual complexity for your viewers.

Example: 'Create this for marketing professionals with no technical background. Explain concepts in business terms. Use analogies and simple diagrams rather than technical schematics.'

Complete Video Custom Instruction Examples

EXAMPLE 1: BUSINESS PRESENTATION

Custom instruction: 'Create a video overview of the Q3 financial report for board members. Focus exclusively on revenue growth, profit margins, and market share changes. Use all charts and graphs from the source documents. Keep explanations concise and business-focused - assume deep financial literacy. Ignore operational details and employee statistics. Aim for 6-8 minutes total length.'

Result: A focused financial summary emphasizing key metrics with extensive data visualization, appropriate for executive viewing.

EXAMPLE 2: EDUCATIONAL TUTORIAL

Custom instruction: 'Create an explainer video teaching photosynthesis to secondary school biology students. Use simple diagrams and step-by-step visual breakdowns. Include all illustrations from the textbook source. Explain each stage clearly with everyday analogies. Avoid overly technical terminology. Structure as: 1) What is photosynthesis?, 2) Ingredients needed, 3) Step-by-step process, 4) Why it matters.'

Result: A structured, visual tutorial appropriate for classroom use or independent study.

EXAMPLE 3: RESEARCH SUMMARY

Custom instruction: 'Summarize the methodology section for peer researchers. Focus on experimental design, data collection procedures, and analytical techniques. Extract all methodology diagrams and flowcharts. Use technical terminology appropriate for academic audiences. Compare the approach to similar studies mentioned in the literature review. Emphasize novel aspects of the methodology.'

Result: A methodology-focused summary for academic audiences, highlighting research design and novel approaches.

NOTE

Like audio overviews, video content does not include citations. If you need to trace specific claims back to sources, use the Chat panel to query those points and request citations.

6.9 Nano Banana and Custom Visual Styles

The Custom Style Option

Beyond the eight preset visual styles, NotebookLM offers a powerful 'Custom' option that allows you to describe your desired aesthetic in natural language. Added in November 2025, this feature uses Nano Banana's generative capabilities to create bespoke visual styles based on text descriptions.

This opens possibilities for:

- Brand-consistent visual language matching corporate guidelines
- Unique artistic styles not covered by presets
- Consistent visual identity across a series of videos
- Culturally appropriate aesthetics for specific audiences

Crafting Custom Style Descriptions

Effective custom style descriptions typically include:

Color palette: Specify dominant colors, tones, or color relationships

Example: 'Warm earth tones - terracotta, ochre, and sage green'

Visual texture: Describe surface quality or rendering style

Example: 'Soft gradients with subtle grain texture, like risograph printing'

Illustration approach: Define how elements should be depicted

Example: 'Geometric simplified shapes with bold outlines, inspired by mid-century modern design'

Mood or atmosphere: Convey the emotional tone

Example: 'Professional yet approachable, clean and trustworthy'

Complete Custom Style Examples

💡 EXAMPLE: CORPORATE BRAND STYLE

Custom style description: 'Clean minimalist design using our brand colors: deep navy blue and bright teal, with white space. Flat vector illustrations with rounded corners. Modern sans-serif typography. Professional corporate aesthetic similar to tech company presentations. Emphasis on clarity and simplicity.'

Result: Videos matching corporate visual identity, suitable for client-facing or internal corporate communications.

💡 EXAMPLE: CHILDREN'S EDUCATIONAL STYLE

Custom style description: 'Bright, cheerful children's storybook aesthetic. Primary colors with high saturation. Friendly rounded characters and objects. Hand-drawn feel with visible texture. Playful and engaging, appropriate for 7-10 year olds. Think Eric Carle or children's picture books.'

Result: Engaging, age-appropriate visuals for primary school educational content.

💡 EXAMPLE: ACADEMIC MONOCHROME STYLE

Custom style description: 'Sophisticated monochrome palette; black, white, and shades of grey. Clean line drawings reminiscent of scientific diagrams and technical illustrations. Precise, detailed rendering. Academic and authoritative tone. Similar to illustrations in academic journals or technical manuals.'

Result: Serious, scholarly visual treatment appropriate for academic or scientific content.

⚠️ WARNING

Custom style descriptions require experimentation. Results may vary, and you might need to refine your description across multiple generations to achieve your desired aesthetic. Start with clear, specific language and adjust based on outputs.

6.10 Video Best Practices

Optimizing Sources for Video

Video overviews excel when sources contain rich visual content. To maximize effectiveness:

- Include sources with charts, graphs, diagrams, and images
- Upload presentation slides as sources for slide-heavy content
- Ensure image quality is high in source documents
- Consider creating supplementary visual sources if your primary documents are text-heavy

Choosing Between Audio and Video

Both formats have distinct strengths. Choose video when:

- Visual information is central to understanding (charts, processes, diagrams)
- Your audience expects video format (presentations, social media)
- Content benefits from structured slide-based organization
- You need shareable visual assets for websites or documentation

Choose audio when:

- Multitasking during consumption is important (commuting, exercise)
- Content is primarily conceptual rather than visual
- Conversational exploration of ideas is valuable
- You want Interactive Mode capability

Combining Audio and Video

Consider creating both formats from the same sources for different use cases:

- Video for formal presentation contexts
- Audio for personal learning and commute-friendly consumption
- Video Brief for quick previews, Audio Deep Dive for comprehensive understanding
- Different custom instructions for each, targeting different aspects of the same material

Playback and Sharing

Video overviews support variable playback speed, allowing viewers to adjust tempo. Navigation controls enable skipping forward or rewinding to specific sections. Like audio, videos can be downloaded for offline viewing or external sharing.

TIP

When sharing videos externally, consider your visual style choice carefully; it becomes part of your professional presentation. Classic or Whiteboard styles generally work well for professional contexts, whilst more creative styles suit informal or creative audiences.

KEY TAKEAWAYS

1. Audio overviews offer four formats (Deep Dive, Brief, Critique, Debate), each suited to different listening contexts and information needs.
2. The 10,000-character custom instruction field is the primary tool for transforming generic outputs into highly specialized content tailored to specific audiences and purposes.
3. Video overviews excel when sources contain rich visual content and can be customized with eight preset styles plus custom descriptions.
4. Interactive Mode (English only) enables real-time questioning during audio playback, transforming passive consumption into active dialogue.
5. Both formats support multilingual generation (80+ languages), enabling global content creation and accessibility.

What's Next

Having mastered audio and video overviews, we now turn to the Studio panel's other powerful features. Chapter 7 explores mind maps for visualizing conceptual relationships, reports for comprehensive written summaries, infographics for visual data presentation, and slide decks for structured presentations; each with its own customization options and strategic applications.

PART IV: THE STUDIO PANEL

Chapter 7: Mind Maps, Reports, Infographics, and Slide Decks

LEARNING OBJECTIVES

By the end of this chapter, you will be able to:

1. Generate interactive mind maps to visualize and navigate complex source material
2. Create customized reports with precise control over structure, tone, and format using up to 10,000-character prompts
3. Design professional infographics using Nano Banana Pro with tailored orientations, detail levels, and visual styles
4. Produce audience-aware slide decks with customized branding, visual metaphors, and speaker notes
5. Apply advanced prompting techniques to transform default outputs into precisely targeted professional materials

The Studio panel represents NotebookLM's transformation from a research assistant into a comprehensive content production facility. Whilst the Chat panel helps you *understand* your sources through conversation; the Studio panel helps you *communicate* that understanding to others through visually compelling formats.

This chapter explores four powerful Studio features that work in complementary ways: mind maps help you *explore* the conceptual landscape of your sources; reports let you *synthesize* findings into comprehensive documents; infographics enable you to *visualize* complex information; and slide decks allow you to *present* ideas to specific audiences.

The December 2025 addition of infographics and slide decks marked a pivotal moment in NotebookLM's evolution. Powered by Nano Banana Pro (Google's Gemini 3 Image model), these features bring professional-grade visual generation directly into your research workflow. Combined with the 10,000-character custom prompt fields now available across most Studio features, you have unprecedented control over how your research translates into professional deliverables.

TIP

Workflow Recommendation: Start with a mind map to understand the territory, create custom reports to synthesize key findings, then generate infographics or slide decks to communicate specific insights. Each format serves a different purpose in your knowledge work pipeline.

Section A: Mind Maps - Navigating Conceptual Territory

Mind maps in NotebookLM transform dense source materials into interactive, branching visualizations that reveal the conceptual architecture of your research. Unlike static diagrams you might create manually, these AI-generated maps automatically identify key themes, organize hierarchical relationships, and create navigable pathways through complex information.

7.1 Understanding Mind Maps in NotebookLM

A NotebookLM mind map is a visual summary that presents information as a network of connected nodes. The central concept branches into major themes, which further subdivide into specific subtopics. This hierarchical structure makes it easy to:

- Grasp the 'big picture' of unfamiliar material without reading every page
- Identify connections between concepts that might not be obvious in linear text
- Navigate directly to areas of interest by clicking on relevant nodes
- Generate targeted questions about specific concepts for deeper exploration

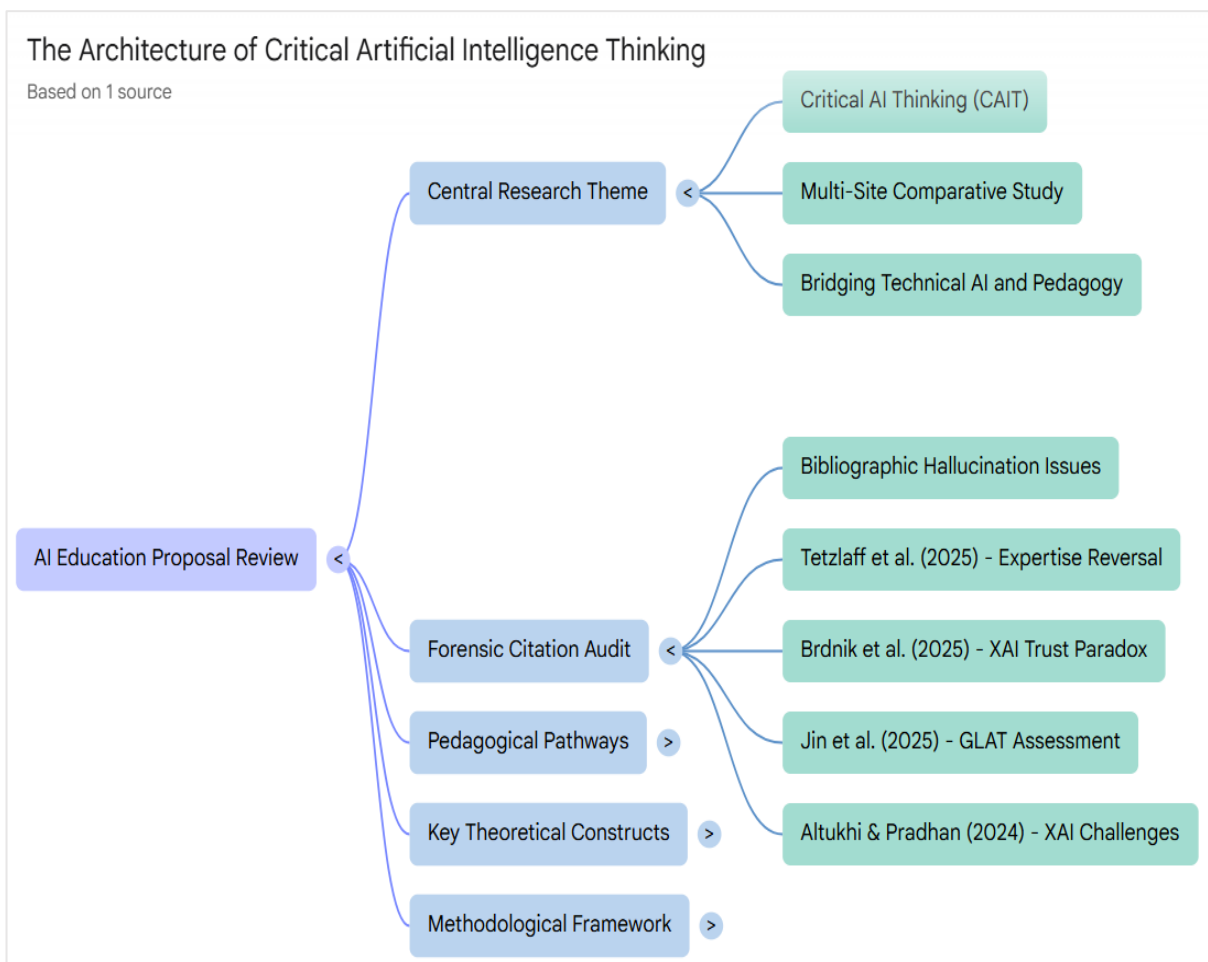


Figure 7.1: Mind map showing hierarchical structure with expandable branches and clickable nodes

What Makes NotebookLM Mind Maps Unique

If you've used mind mapping tools like Obsidian's Graph View or XMind, you'll recognize the branching structure. However, NotebookLM's implementation offers distinct advantages:

Source-grounded accuracy: Every node and connection derives from your uploaded sources. The map reflects *what's actually in your materials*, not generic knowledge or hallucinated relationships.

Interactive exploration: Clicking any node opens a summary in the Chat panel and allows you to ask follow-up questions specifically about that concept. This bridges visual exploration with conversational deep-diving.

Zero manual effort: Unlike tools requiring you to manually create nodes and draw connections, NotebookLM analyses your sources and generates the complete structure automatically in seconds.

NOTE

Current Limitation: As of February 2026, mind maps do not support custom prompt fields. You cannot directly instruct NotebookLM to emphasize certain themes or organize the map in specific ways. The structure is entirely determined by AI analysis of your sources. However, you *can* influence the output by carefully selecting which sources to include when generating the map.

7.2 Generating and Using Mind Maps

Creating a mind map requires just a few clicks, but understanding how to navigate and leverage it requires knowing its interactive capabilities.

Basic Generation Process

1. Open your notebook and ensure you have sources uploaded
2. Navigate to the Studio panel (top-right section of the interface)
3. Click the 'Mind Map' tile
4. Optionally, select specific sources if you want to map only a subset of your materials
5. Click 'Generate' and wait 15–30 seconds for the map to render

Once generated, the mind map appears as an interactive canvas. The initial view shows the first level of organization; major themes branching from a central concept. You'll see small arrows (caret) next to nodes that can be expanded to reveal deeper levels.

Navigation and Interaction

Mind maps are designed for active exploration, not passive viewing. Here are the key interaction patterns:

Zooming and panning: Use your mouse wheel or trackpad gestures to zoom in and out. Click and drag to pan across the canvas. This is essential when working with large source collections that generate extensive maps.

Expanding and collapsing branches: Click the arrow next to any node to expand it and reveal sub-topics. Click again to collapse. This allows you to maintain a high-level overview whilst selectively diving into areas of interest.

Node selection for chat: Click directly on any node to open a summary of that concept in the Chat panel. NotebookLM will provide an AI-generated explanation drawn from your sources, along with suggested follow-up questions. This is the map's most powerful feature; it transforms static visualization into an interactive research tool.

Toolbar options: The top-right corner of the map view provides buttons to expand all branches, collapse all branches, download the map as a PNG image, or exit the view.

TIP

Strategic Node Clicking: When encountering unfamiliar territory in your sources, expand the mind map fully, then click nodes representing concepts you don't understand. This generates on-demand explanations that help you build foundational knowledge before diving into detailed reading.

7.3 Practical Applications Across Disciplines

Mind maps serve different purposes depending on your role and research goals. Here are field-specific applications:

For Researchers: Literature Review Mapping

Upload 20-50 papers on a research topic. The mind map reveals which themes dominate the field, which concepts are central versus peripheral, and where connections exist between seemingly disparate studies. Click on nodes representing theoretical frameworks to get summaries that help you understand how different authors approach the same concept.

Example: *A researcher studying climate change adaptation uploaded 40 papers. The mind map identified five major branches: 'Policy Frameworks', 'Technological Solutions', 'Community Resilience', 'Economic Models', and 'Ecosystem-Based Approaches'. Clicking the 'Community Resilience' node revealed sub-topics including 'Indigenous Knowledge Systems', 'Social Capital', and 'Risk Communication', with each node linking to specific papers.*

For Teachers: Curriculum Visualization

Upload course readings, textbook chapters, or curriculum documents. The resulting mind map shows how topics interconnect and where prerequisite knowledge is required. Use this to identify optimal teaching sequences or to create visual study guides for students.

Example: *A history teacher uploaded 15 primary source documents about the Industrial Revolution. The mind map organised content into 'Technological Innovations', 'Social Changes', 'Economic Transformations', and 'Political Responses'. This structure became the basis for a four-week unit plan, with each branch representing one week of instruction.*

For Students: Exam Preparation

Upload lecture notes, textbook chapters, and supplementary readings. Generate a mind map to see the entire course structure at a glance. Download the PNG to use as a study aid, or interact with nodes to quiz yourself on concepts you're uncertain about.

Example: A medical student uploaded notes from eight weeks of immunology lectures. The mind map organised content into 'Innate Immunity', 'Adaptive Immunity', 'Immunological Disorders', and 'Vaccines and Therapeutics'. By clicking nodes representing confusing concepts (like 'MHC Class II Presentation'), the student generated targeted explanations without re-reading entire lecture transcripts.

7.4 Strategic Source Selection for Mind Maps

Since you cannot customize mind maps with prompts, your primary control mechanism is *which sources you include*. This makes source selection a strategic decision rather than a technical one.

Focused versus comprehensive maps: If you want a map showing detailed connections within a specific sub-topic, select only sources related to that area. For example, from a notebook containing 100 papers on artificial intelligence, select only the 15 papers on 'Explainable AI' to generate a focused map. For a comprehensive overview of the entire field, include all sources.

Comparative mapping: Generate one map from theoretical papers, then a second map from empirical studies. Compare the structures to see how different research approaches organize knowledge differently.

Temporal mapping: Create maps from sources grouped by time period (e.g., 'Pre-2010 Research', '2010-2020', 'Post-2020') to visualize how a field's conceptual structure has evolved.

WARNING

Mind Map Regeneration: Unlike reports or slide decks, which are saved in your Studio panel, mind maps are regenerated each time you open them. If you regenerate a map, you'll lose your previous expansion state and may see slightly different organization. Always download important maps as PNG files if you need to preserve them.

7.5 Exporting and Sharing Mind Maps

NotebookLM provides two methods for sharing mind maps with others:

Method 1: Share the entire notebook

Use NotebookLM's sharing functionality to grant 'Viewer' or 'Editor' access to your entire notebook. Collaborators can then generate and interact with the same mind map from the Studio panel. This method is best when working with teams who need ongoing access to your research materials.

Method 2: Download and distribute the PNG

Click the download button within the mind map view to save it as a PNG image. This creates a static snapshot you can email, include in presentations, or embed in documents. This method works when you need to share the visualization without granting access to underlying sources.

NOTE

Third-Party Tools: Several developers have created browser extensions (such as the 'NotebookLM Mind Map Extractor') that export mind maps as editable Markdown or JSON files. These can then be imported into dedicated mind mapping software like XMind for further customization. Whilst not officially supported by Google, these tools address the current limitation of static PNG exports.

Section B: Reports - Synthesis and Documentation

Reports transform your source materials into structured documents that synthesize key findings, organize information logically, and present insights in formats tailored to specific audiences. Unlike the conversational outputs in the Chat panel, reports are polished, coherent documents designed for distribution, reference, and professional use.

7.6 Report Types and Formats

NotebookLM offers three tiers of report generation, each with different levels of customization:

One-Click Preset Formats

These are the fastest way to generate reports. Click 'Reports' in the Studio panel, then select from:

Briefing Doc: A comprehensive overview of all sources, pulling key insights, important quotes, and major themes into a single document. Typically, 2,000–3,000 words. Best for getting a high-level understanding of large source collections.

Study Guide: Organizes information into learning-friendly sections with key concepts, definitions, and explanations. Includes suggested focus areas for revision. Best for students preparing for exams or learning new material.

Blog Post: A narrative-style document written in accessible language, suitable for public communication. Emphasizes storytelling and clear explanations over technical detail. Best for content creators and communicators.

FAQ: Structures content as questions and answers. Particularly useful when your sources contain information that naturally maps to common queries. Best for customer-facing documentation or educational resources.

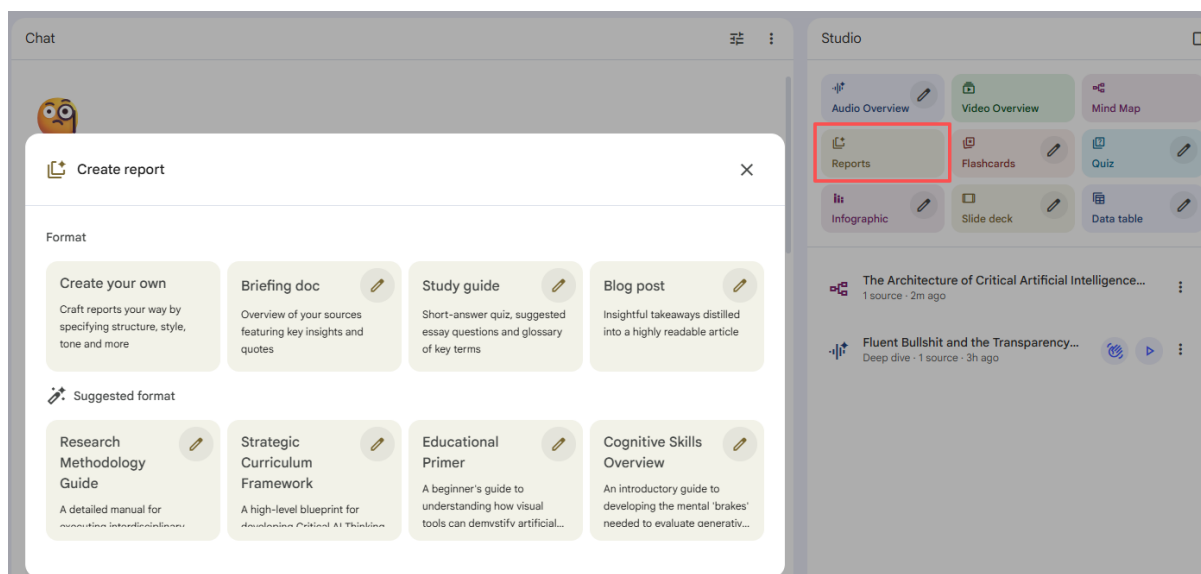


Figure 7.4: Studio panel Reports interface showing one-click format options

💡 TIP

Adding Instructions to Presets: As of late 2025, you can now add custom instructions even to one-click formats. After selecting 'Briefing Doc' or 'Study Guide', you'll see an optional text field where you can add requirements like 'Focus on methodology sections' or 'Include numerical data where available'. This provides moderate customization without requiring a fully custom prompt.

AI-Suggested Formats

When you click 'Reports', NotebookLM analyses your sources and suggests 3–4 report formats specifically tailored to your content. These suggestions appear below the one-click presets.

For example, if your notebook contains academic papers on machine learning, suggested formats might include 'Technical White Paper', 'Best Practices Guide', 'Explanatory Article', or 'Concept Overview'. If your sources are business documents, you might see 'Executive Summary', 'Strategic Recommendations', or 'Competitive Analysis'.

These suggestions provide a middle ground between rigid presets and fully custom reports. They give you a solid starting structure whilst still allowing customization through additional instructions.

Custom Reports - Full Control

This is where NotebookLM's reporting capabilities truly shine. Click 'Create Your Own' to access a custom prompt field that accepts up to **10,000 characters** of instructions. This massive expansion (from the original 500-character limit) enables you to specify:

- Precise document structure (sections, subsections, appendices)
- Target audience and appropriate technical level
- Tone and style preferences (formal, conversational, academic)

- Content priorities (emphasize certain topics, exclude others)
- Formatting requirements (include examples, code snippets, tables)
- Length and depth specifications

7.7 Crafting Effective Custom Report Prompts

The 10,000-character limit provides enormous flexibility, but also requires strategic thinking about how to structure your instructions. Here's a framework for creating effective custom report prompts:

Recommended Prompt Structure

Organize your custom prompt into clear sections:

1. Document Type and Purpose

Begin by clearly stating what type of document you need and why it exists.

Example:

"Create a comprehensive technical white paper that synthesizes current research on renewable energy storage technologies. The purpose is to inform policymakers about emerging solutions for grid-scale energy storage."

2. Target Audience

Specify who will read the report and their level of technical expertise.

Example:

"The audience consists of government officials and policy advisors with moderate scientific literacy. Avoid excessive technical jargon, but do not oversimplify. Define specialized terms when first introduced."

3. Required Structure

Outline the sections you want, with brief descriptions of what each should contain.

Example:

"Organize the report into the following sections: 1. Executive Summary (1 page) 2. Current State of Energy Storage (overview of existing technologies) 3. Emerging Technologies (detailed examination of new approaches) 4. Economic Analysis (cost projections and market potential) 5. Policy Implications (recommendations for government action) 6. Conclusion"

4. Content Priorities

Indicate which topics should receive emphasis and which can be treated more briefly.

Example:

"Prioritize solid-state batteries and flow batteries over established technologies like lithium-ion. Include specific cost-per-kilowatt-hour figures where available in the sources. Briefly mention hydrogen storage but do not devote extensive space to it."

5. Style and Tone

Describe the writing style you want NotebookLM to adopt.

Example:

"Use a formal, authoritative tone appropriate for policy documents. Write in active voice where possible. Avoid sensationalism; present findings objectively. When discussing competing technologies, remain neutral and evidence-based."

6. Formatting and Presentation

Specify any formatting requirements for citations, data presentation, or document layout.

Example:

"Include source citations as numbered references throughout the text. When presenting comparative data, use tables rather than prose descriptions. Provide a reference list at the end with full source details."

TIP

Iterative Refinement: Don't expect perfection from your first custom report. Generate an initial version, review it critically, then create a second report with refined instructions addressing any gaps or issues. This two-stage approach often produces better results than trying to craft the perfect prompt on the first attempt.

Example Custom Report Prompts

Here are complete prompt examples for different use cases:

Example 1: Research Literature Synthesis

"Create a systematic literature review that synthesizes research on machine learning applications in medical diagnostics. Target audience: academic researchers and medical professionals. Structure: 1. Introduction (brief overview of the field) 2. Methodology (describe search criteria and inclusion/exclusion if mentioned in sources) 3. Key Findings organised by application area (radiology, pathology, genomics, etc.) 4. Methodological Approaches (supervised learning, deep learning, ensemble methods) 5. Performance Metrics and Validation Studies 6. Limitations and Challenges 7. Future Directions 8. Conclusion for each major application area, provide specific examples from the sources including dataset sizes, reported accuracy metrics, and clinical validation status. Present conflicting findings objectively. Maintain an academic tone with proper in-text citations. Aim for 4,000–5,000 words."

Example 2: Business Intelligence Report

"Generate a competitive analysis report for the electric vehicle market based on the uploaded quarterly reports, market analyses, and news articles. Audience: C-suite executives and board members. Structure: 1. Executive Summary (one-page overview of key findings) 2. Market Overview (current size, growth trajectory, regional breakdown) 3. Competitive Landscape a. Tesla positioning and strategy b. Traditional automotive manufacturers c. Chinese EV makers d. New entrants and startups 4. Technology Trends (battery technology, autonomous driving, charging infrastructure) 5. Regulatory Environment 6. Strategic Recommendations prioritize data on market share, production volumes, and pricing strategies. Include specific financial metrics where available. Use tables for comparative data. Write in a professional, decision-oriented tone. Flag areas where sources provide contradictory information. Target 2,500–3,000 words."

Example 3: Educational Resource Creation

"Create a comprehensive study guide on quantum mechanics suitable for undergraduate physics students preparing for final exams. Draw from the uploaded lecture notes, textbook chapters, and problem sets. Structure: 1. Core Concepts (organised hierarchically from fundamentals to advanced topics) 2. Mathematical Foundations (key equations with explanations) 3. Problem-Solving Strategies (step-by-step approaches for common question types) 4. Conceptual Challenges (common misconceptions and how to avoid them) 5. Practice Questions (organised by difficulty level) 6. Quick Reference Section (formulae, constants, useful relationships) for each concept, provide: - Clear definition in plain language - Mathematical formulation - Physical interpretation - Example application Use a supportive, pedagogical tone. Explain 'why' not just 'what'. Include worked examples showing complete problem-solving process. Aim for 6,000–7,000 words to ensure comprehensive coverage."

7.8 Exporting and Using Reports

Once generated, reports can be exported to Google Docs or Google Sheets (if they contain data tables). Click the three-dot menu next to your generated report in the Studio panel and select the appropriate export option.

Export to Google Docs: Creates a new Google Doc with the complete report content. This allows you to edit, format, and share the document using Google's collaboration tools. Formatting is basic (plain text with minimal styling), so you'll typically want to apply your own styling after export.

Export to Google Sheets: Available only when your report contains data tables. Each table is exported to a separate sheet within the workbook, allowing for further data analysis, charting, or manipulation.

NOTE

Viewing Custom Prompts: To see the prompt used to generate any report, click the three-dot menu and select 'View custom prompt'. This is particularly useful when you want to refine a report; you can copy the original prompt, make adjustments, and generate a new version without starting from scratch.

Section C: Infographics and Slide Decks - Visual Communication

The December 2025 introduction of infographics and slide decks marked NotebookLM's evolution from a text-focused research tool into a comprehensive content creation platform. Powered by Nano Banana Pro, Google's Gemini 3 Image generation model, these features automatically transform your research into polished visuals without requiring design skills or external software.

7.9 Infographics - Data Visualization Made Simple

NotebookLM's infographic generator analyses your sources to identify key data points, relationships, and concepts, then creates visual summaries optimized for different

platforms and purposes. The process collapses what traditionally required hours of work in design tools like Canva into a 30-second AI operation.

Configuration Options

When creating an infographic, you make three key decisions before adding any custom instructions:

1. Orientation

- **Landscape (16:9):** Ideal for LinkedIn posts, blog headers, presentation slides, email campaigns, and desktop viewing. The horizontal format supports left-to-right reading patterns and works well for timeline visualizations or process flows.
- **Portrait (9:16):** Perfect for Instagram Stories, TikTok, mobile-first content, and print materials. Vertical orientation suits hierarchical information or step-by-step guides.
- **Square (1:1):** Optimized for Instagram feed posts, profile pictures, and situations where you need maximum compatibility across platforms.

2. Detail Level

NotebookLM now offers three tiers of information density to suit different consumption contexts:

- **Concise:** Prioritizes visual impact over text. This mode generates clean, minimal designs with very short summaries, ideal for social media feeds (like Instagram or TikTok) or slide backgrounds where you want the audience to focus on the speaker rather than reading the graphic.
- **Standard:** The default setting that strikes a balance between visual elements and textual explanation. This option works best for general-purpose summaries, blog headers, or presentation slides that need to be self-explanatory without being overwhelming.
- **Detailed (Beta):** Generates dense, information-rich visuals that include more comprehensive data points, longer text explanations, and deeper analysis. This is best suited for study guides, technical documentation, or printable handouts where the reader needs to grasp the full nuance of the source material. Note: The 'Beta' tag indicates this feature is still being optimized for layout stability with large amounts of text.

3. Custom Prompt (Optional)

After selecting orientation and detail level, you can add custom instructions to guide the design. This is where you specify:

- Color palette preferences (e.g., 'use corporate brand colors: navy blue #1A365D and gold #D4AF37')
- Target audience considerations (e.g., 'design for C-level executives, emphasize ROI data')
- Visual style (e.g., 'minimal, modern aesthetic with lots of white space' or 'bold, high-contrast design')

- Content priorities (e.g., 'highlight the top five findings' or 'focus on comparative statistics between regions')
- Illustration preferences (e.g., 'use data visualization charts, not decorative imagery' or 'include relevant icons')

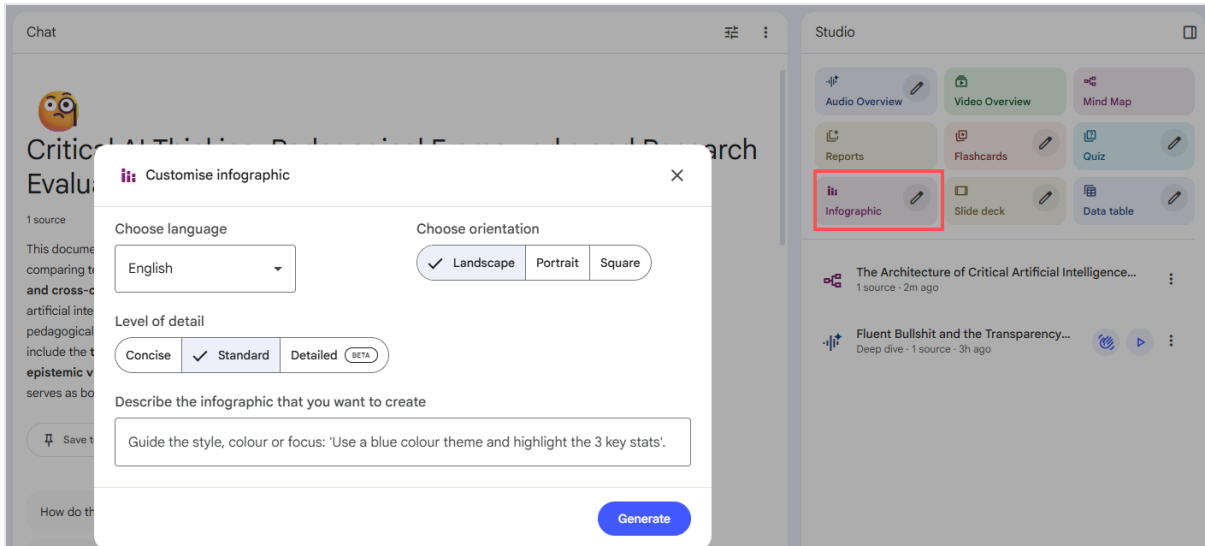


Figure 7.3: Infographic creation interface showing orientation, detail level, and custom prompt options

Effective Infographic Prompts

The clearer and more specific your prompt, the better your results. Here are examples demonstrating effective prompting techniques:

Example 1: Marketing Performance Summary

Orientation: Landscape Detail Level: Detailed

Custom Prompt: "Create a professional marketing performance dashboard showing Q4 2024 results. Use a clean, corporate color scheme with blues and greys. Highlight four key metrics: conversion rate (show percentage increase), customer acquisition cost (show cost reduction), total revenue (emphasize growth), and email open rates. Include small bar charts or trend lines for each metric. Design should be suitable for inclusion in a board presentation. Focus on hard numbers that demonstrate ROI."

Example 2: Educational Concept Visualization

Orientation: Square Detail Level: Simple

Custom Prompt: "Visualize the three main branches of government (executive, legislative, judicial) and their relationships. Use a triangular layout showing checks and balances. Color code each branch: executive in red, legislative in blue, judicial in gold. Include minimal text—just branch names and 1-2 word descriptions of their primary functions. Target audience is high school students, so keep it visually engaging and easy to understand at a glance. Modern, flat design style."

Example 3: Research Findings Summary

Orientation: Portrait Detail Level: Detailed

Custom Prompt: "Summarize the top five ranking factors for SEO in 2025 based on the uploaded research reports. Present as a numbered vertical list with each factor having: (1) brief title, (2) 1-2 sentence explanation, (3) specific data point showing its importance percentage. Use a professional web design color scheme with teal and orange accents. Include small icons representing each factor (e.g., magnifying glass for search intent, speedometer for page speed). Design for sharing on LinkedIn, so ensure text is readable on mobile devices. Clean, modern layout with ample white space."

TIP

Color Specification: When requesting specific colors, provide hex codes (e.g., #1A365D) rather than just color names. 'Navy blue' means different things to different people, but #1A365D is unambiguous. This ensures brand consistency when creating multiple infographics for the same project.

Limitations and Considerations

Whilst NotebookLM's infographic generation is remarkably powerful, it has important limitations to understand:

Factual accuracy: Infographics are based on source content, but occasional errors can occur. Always fact-check critical data points, especially numbers, dates, and statistics.

No citations on visuals: Unlike reports, infographics don't include source citations within the visual. If you need to trace a specific claim back to its source, copy the relevant text from the infographic and ask about it in the Chat panel to get cited references.

Limited iterative editing: You cannot directly edit generated infographics. If you need changes, you must generate a new version with revised instructions. This differs from traditional design tools where you can make incremental adjustments.

WARNING

Professional Use Verification: Before using generated infographics in professional or published contexts, verify all factual claims against your source materials. Treat AI-generated visuals as drafts requiring human review, not finished products. This is particularly critical for medical, legal, or financial information where accuracy is paramount.

7.10 Slide Decks - Audience-Aware Presentations

Slide deck generation represents perhaps the most sophisticated Studio feature, combining Nano Banana Pro's visual capabilities with NotebookLM's content understanding to create complete presentations tailored to specific audiences and contexts.

Understanding Slide Deck Generation

Unlike simple content-to-slides converters, NotebookLM's slide deck feature employs the same creative agents that power Audio and Video Overviews. This means it doesn't just extract text and add it to templates; it actually *understands* your content and makes strategic decisions about:

- Information hierarchy (what goes on title slides versus detail slides)
- Visual metaphors (generating images that conceptually represent abstract ideas)
- Presentation flow (logical progression from introduction through conclusion)
- Complexity calibration (adjusting technical depth based on specified audience)
- Speaker notes (providing presenter guidance for each slide)

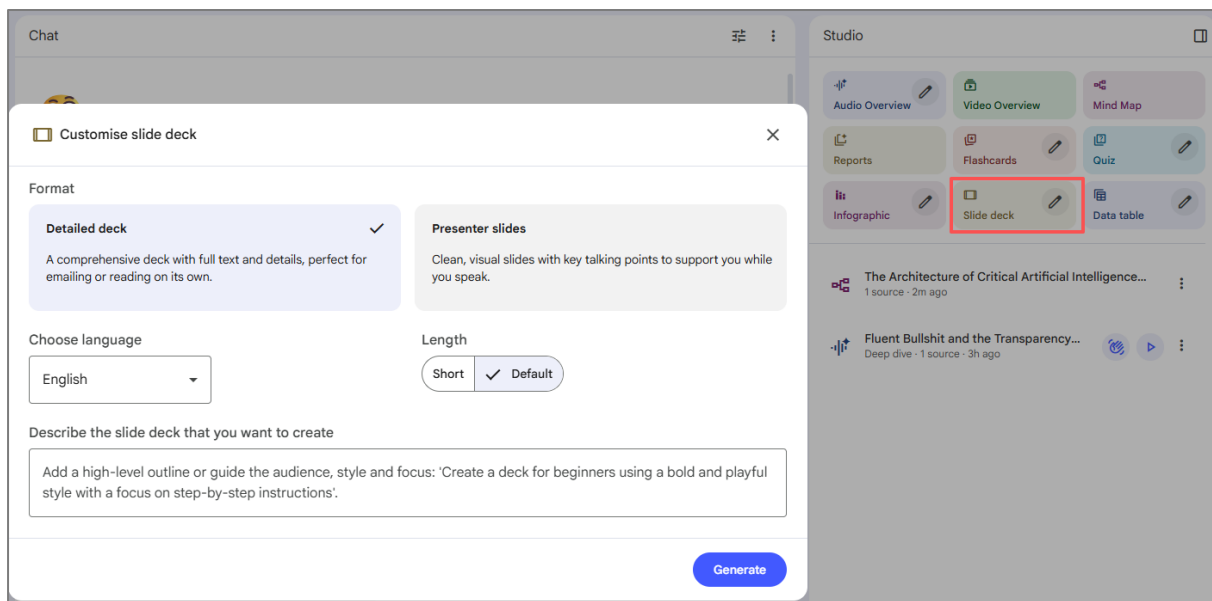


Figure 7.4: Slide deck creation interface showing format, length, and custom prompt option

Customization Through Prompting

The slide deck custom prompt field supports the same 10,000-character limit as reports, enabling precise control over every aspect of your presentation. Here's how to structure effective prompts:

Specify Your Audience

NotebookLM automatically adjusts tone, complexity, and visual emphasis based on audience. Be specific:

"Create a 10-slide deck for C-level executives focused on high-level strategic implications, not technical details. Emphasize ROI and competitive advantage."

"Generate a presentation for undergraduate biology students. Include clear explanations of complex processes. Use visual metaphors and diagrams to aid understanding."

"Prepare slides for a technical team of software engineers. Include code snippets, architecture diagrams, and implementation details. Assume familiarity with distributed systems."

Define Presentation Structure

Outline the number of slides and their purpose:

"Create a 15-slide deck with this structure: - Slide 1: Title with compelling hook - Slides 2-3: Problem statement with supporting data - Slides 4-8: Five potential solutions, one per slide - Slides 9-11: Comparative analysis of top three solutions - Slide 12: Implementation roadmap - Slide 13: Resource requirements - Slide 14: Expected outcomes - Slide 15: Call to action"

Control Visual Style and Branding

Specify design preferences and brand requirements:

"Use our company brand colors: primary blue #0052CC, accent orange #FF5630, neutral grey #F4F5F7. Sleek, modern design with minimal text per slide. White background throughout. Include our logo placeholder in the bottom-right corner of each slide."

"Create a visually rich presentation with high-quality images illustrating each concept. Use bold typography and high contrast. Design should feel premium and sophisticated, suitable for investor pitch."

Emphasize Data Visualization

Request specific approaches to presenting quantitative information:

"Visualize numerical data using charts and infographic-style representations. When showing global tourism statistics, relate numbers to real-world metaphors that make the scale comprehensible. For instance, '500 million visitors' could be shown as 'equivalent to the entire population of North America'. Make data memorable and impactful."

Complete Example Prompts for Slide Decks

Example 1: Product Launch Presentation

"Generate a 20-slide product launch deck for our new SaaS platform. Target audience: potential enterprise customers and partners at a technology conference. Structure: - Slides 1-2: Hook and problem statement (show the pain points our platform solves) - Slides 3-5: Solution overview (high-level platform capabilities) - Slides 6-12: Feature deep-dive (one major feature per slide with screenshot placeholder and benefit statement) - Slides 13-15: Customer success stories (use case examples with metrics) - Slides 16-17: Pricing and packages - Slide 18: Implementation timeline - Slide 19: Competitive advantages - Slide 20: Next steps and contact information Design: Modern, tech-forward aesthetic. Use our brand colors: primary teal #20B2AA, dark slate #2F4F4F, accent coral #FF7F50. Include relevant tech industry imagery. Keep text minimal—maximum 3 bullet points per slide. Each slide should be self-explanatory for demo purposes. Speaker notes: Provide detailed talking points for sales team, including objection handling and transition phrases between slides."

Example 2: Academic Conference Presentation

"Create a 12-slide research presentation for an academic conference. Audience: specialist researchers in neuroscience with expertise in neuroplasticity. Structure: - Slide 1: Title with authors and institutional affiliations - Slide 2: Research question and hypotheses - Slide 3: Background and theoretical framework - Slides 4-5: Methodology (experimental design, participant demographics, measurement protocols) - Slides 6-8: Results (include data visualizations; bar charts for group comparisons, line graphs for longitudinal data) - Slide 9: Statistical analysis summary - Slide 10: Discussion of findings in context of existing literature - Slide 11: Limitations and future research directions - Slide 12: Conclusions and implications Design: Clean, academic style with white background. Prioritize readability and data clarity over decorative elements. Use standard academic color scheme: dark blue for primary text, grey for secondary elements. Include figure numbers and brief captions for all data visualizations. Ensure charts and graphs are large enough to be readable from the back of a

lecture hall. Speaker notes: Provide transition sentences, remind me to point out specific features in graphs, and flag where to anticipate questions."

Example 3: Educational Lesson Plan

"Design a 25-slide presentation for teaching the water cycle to Year 7 students (ages 11-12). Create an engaging, visually driven lesson that holds attention and builds understanding progressively. Structure: - Slide 1: Eye-catching title with dramatic water-related imagery - Slides 2-3: Why water matters (connect to students' daily lives) - Slides 4-10: The water cycle stages explained one at a time (evaporation, condensation, precipitation, collection, infiltration, runoff, transpiration). For each stage: simple definition, visual diagram, real-world example students can relate to - Slides 11-15: Interactive elements (questions prompting class discussion, prediction challenges) - Slides 16-18: Human impact on the water cycle - Slides 19-22: Climate change connections - Slide 23: Review quiz questions - Slide 24: Key vocabulary summary - Slide 25: Further exploration resources Design: Bright, engaging color palette; blues and greens for water/nature theme. Use large, friendly fonts suitable for young learners. Include lots of illustrations and minimal text (no more than 10-15 words per slide). Each scientific concept should have a visual representation, not just text explanation. Style should feel like a modern educational YouTube video, not a traditional textbook. Speaker notes: Provide teaching guidance including approximate timing for each slide, suggested questions to ask students, common misconceptions to address, and tips for checking understanding before moving forward."

Advanced Applications and Combinations

The real power of slide decks emerges when combined with other NotebookLM features:

Slides + Audio Overview: Generate a slide deck, then create an Audio Overview with custom instructions to narrate the presentation. This produces a self-playing presentation suitable for asynchronous viewing or pre-recorded webinars.

Infographics within slides: Create infographics for key data points, then instruct NotebookLM to generate a slide deck that 'incorporates infographic-style data visualizations'. This hybrid approach combines the strengths of both formats.

Report to slides workflow: First generate a comprehensive custom report to synthesize your research, then create a slide deck that 'summarizes the key findings from the uploaded sources, focusing on the main conclusions and actionable recommendations'. This ensures your presentation is grounded in thorough analysis.

TIP

Brand Book Integration: Upload your company's brand guidelines as a source, then reference it in your slide deck prompt: 'Use the brand book for branding and styling references'. NotebookLM will extract color codes, typography preferences, and design principles to create presentations that match your corporate identity. This works remarkably well for maintaining brand consistency across multiple presentations.

Mobile App Considerations

As of February 2026, infographic and slide deck customization features are available on both Android and iOS mobile apps. However, some limitations apply:

- Mind maps are not yet available on mobile
- Video Overview customization options are still being rolled out to mobile platforms
- Custom prompt entry on mobile devices can be cumbersome for long prompts; consider drafting complex prompts on desktop, then generating on mobile if needed

New Update: User Revision of Slide Decks

NotebookLM's Studio has received a significant update that fundamentally changes how users interact with generated slide decks. Previously, if a generated presentation did not meet your expectations, you would need to regenerate the entire deck with a revised prompt and hope for better results. The new **“Revise”** feature, rolling out to all NotebookLM plans in early 2026, gives you direct, surgical control over your slide decks after generation - enabling targeted edits slide by slide without starting from scratch.

What the Revision Feature Offers

The revision panel appears alongside your generated slide deck in the Studio interface. It comprises three core capabilities:

- **Slide-level content edits:** Select any individual slide from a dropdown and provide plain-language instructions to revise its text, bullet points, or headline. For example: “Make the title punchier and remove the third bullet point on this slide.”
- **Design revisions:** Switch to the Design tab to request visual changes such as color scheme adjustments, background imagery swaps, or layout restructuring, either for one slide or applied deck-wide.
- **Speaker notes updates:** Use the Notes tab to refine presenter guidance on any slide. This is especially useful when different team members need different levels of detail in their speaker notes.

Crucially, each revision is non-destructive. An **Undo last revision** button allows you to roll back individual changes, and a **Reset all** option returns the deck to its original generated state. This revision history means you can experiment confidently, knowing you can always recover previous versions.

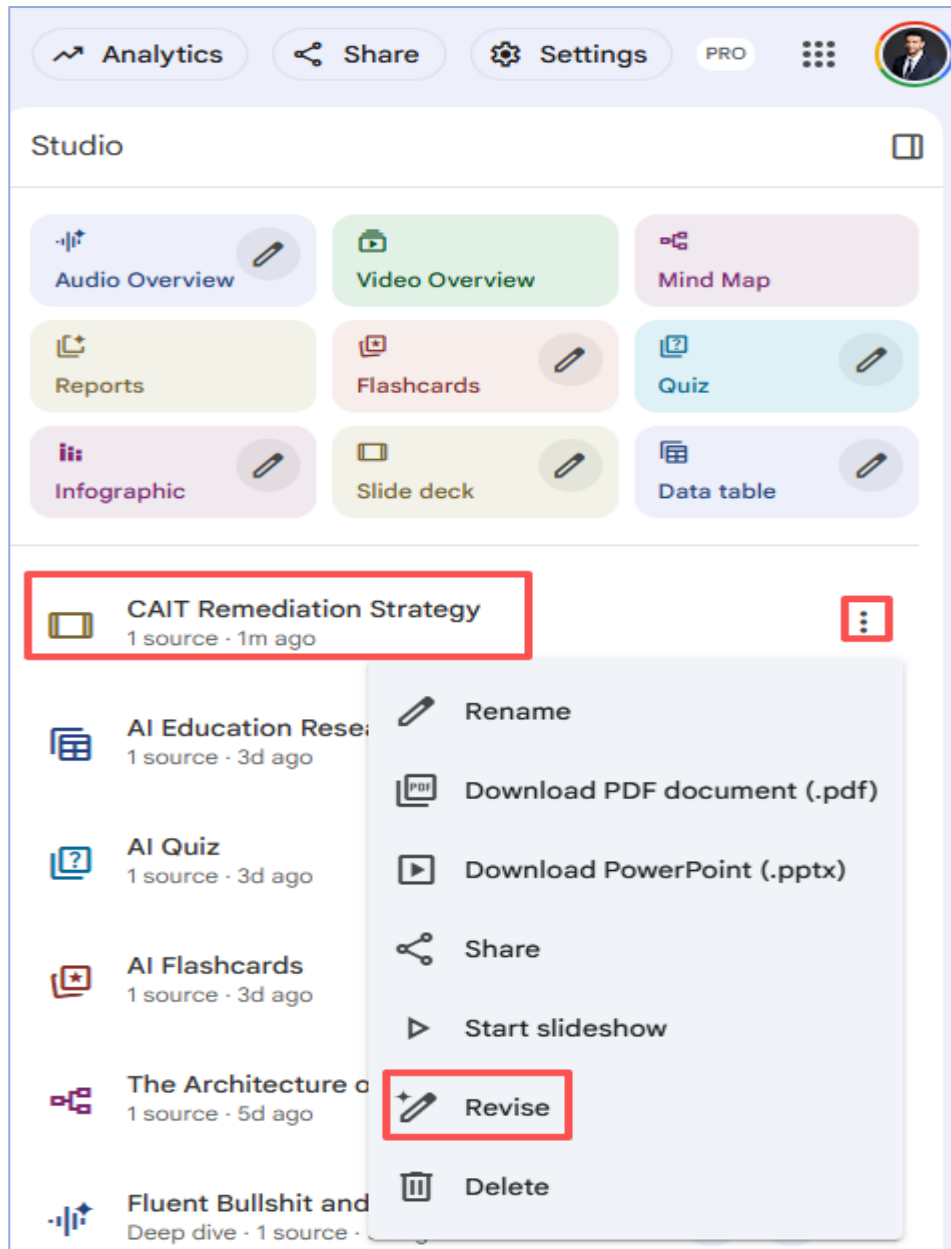


Figure 7.5: The new Revise feature in Slide Deck

How to use the Revision feature effectively:

- Generate your slide deck using the standard prompt workflow as described in this chapter, then open the Revision panel by clicking the pencil icon next to the deck in your Studio output list.
- Select the slide you want to modify from the dropdown, choose whether your change is a Content, Design, or Notes revision, then type your instruction in plain language.
- Choose whether to apply the revision to only the selected slide or to all slides in the deck, then click Apply Revision. The updated slide renders in seconds without affecting the rest of your deck.

This iterative revision workflow is a paradigm shift for NotebookLM users. Instead of the previous “regenerate and hope” approach, you now have a precise, conversational editing loop that brings your slide decks to a fully polished state in far fewer iterations.

☑ KEY TAKEAWAYS

1. Mind maps provide interactive, visual exploration of source material but currently lack customization options; source selection is your primary control mechanism
2. Reports offer three tiers of customization (one-click presets, AI suggestions, and fully custom prompts up to 10,000 characters) suitable for different levels of control and specificity
3. Infographics powered by Nano Banana Pro transform data into professional visuals optimized for different platforms (landscape for LinkedIn, portrait for Instagram, square for universal use)
4. Slide decks employ sophisticated AI agents that understand audience needs, create visual metaphors, and generate speaker notes; not just template-filling automation
5. The December 2025 expansion of custom prompt fields from 500 to 10,000 characters fundamentally changed NotebookLM's capabilities, enabling you to create specialized content that rival's human-designed materials in sophistication and polish

***What's Next:** Chapter 8 explores NotebookLM's learning tools - flashcards, quizzes, and study guides - which transform your sources into active learning materials that help you retain and test your understanding of complex information.*

PART V: LEARNING TOOLS

Chapter 8: Flashcards, Quizzes and Data Tables

Learning Objectives

By the end of this chapter, you will be able to:

1. Master the creation and customization of flashcards with strategic prompting for different learning goals.
2. Generate effective quizzes that test comprehension, application, and synthesis rather than mere recall.
3. Transform scattered information into structured data tables that can be exported to Google Sheets for analysis and collaboration.
4. Implement advanced strategies for combining flashcards, quizzes, and data tables into integrated learning systems.
5. Understand daily limits, sharing options, and how these tools interact with your notebook's source selection.

Learning is not a passive activity. Research consistently demonstrates that *active recall* and *spaced repetition*, the cognitive processes underlying flashcards and quizzes, produce far superior retention compared to passive reading or highlighting. Meanwhile, *structured organization* of information through tables and systematic frameworks enhances comprehension and enables comparative analysis. NotebookLM's learning tools, significantly expanded in late 2025, transform your uploaded sources into interactive study materials and structured data that leverage these evidence-based learning principles.

This chapter moves beyond basic feature descriptions. We examine how to customize flashcards to test decision-making rather than definitions, how to craft quiz prompts that require synthesis across multiple concepts, and how data tables transform scattered information into analyzable structures. Crucially, we explore how these four tools work together as components of an integrated learning system, each addressing different cognitive and organizational needs.

8.1 Flashcards: From Memorization to Application

NotebookLM's flashcard feature generates question-and-answer cards exclusively from your uploaded sources, eliminating the fabrication risks present in general AI knowledge bases. Unlike traditional flashcard tools that require manual creation, NotebookLM produces ready-to-study sets in seconds; but the real power emerges when you customize the prompts strategically.

8.1.1 Basic Flashcard Creation

Flashcards are accessed from the Studio panel alongside Audio Overviews, Mind Maps, and other outputs. The basic workflow:

1. Navigate to the Studio panel
2. Click 'Flashcards'
3. (Optional) Specify topic focus
4. (Optional) Select difficulty level: Easy, Medium, or Hard
5. (Optional) Choose quantity: Fewer, Standard, or More
6. (Optional) Add custom instructions via the prompt field
7. Click 'Generate'

The default output provides straightforward term-definition pairs. These work adequately for basic memorization but rarely challenge deeper understanding.

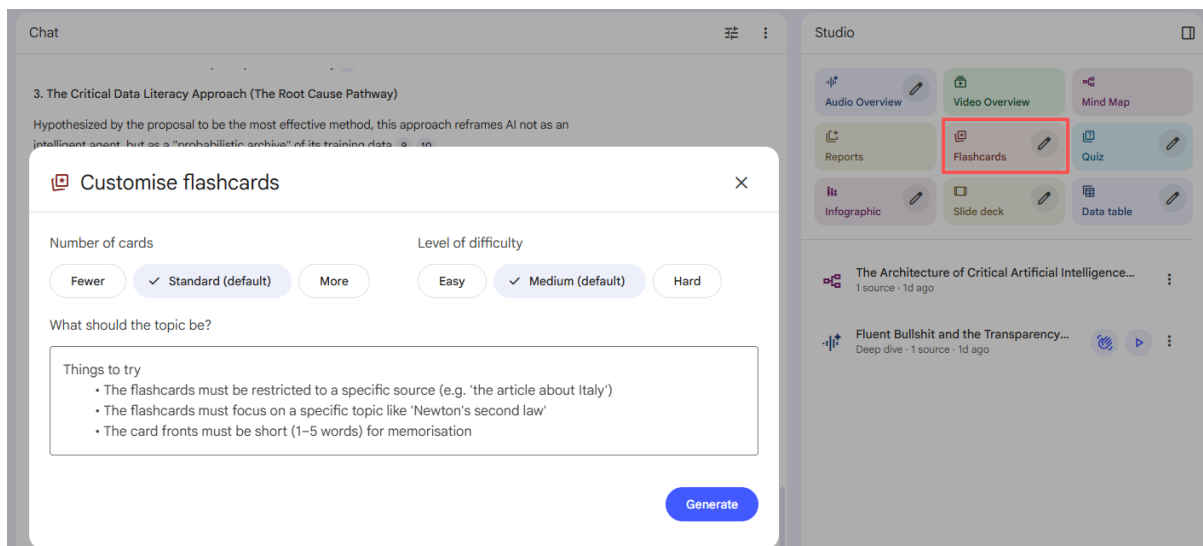


Figure 8.1: Flashcard creation interface showing topic specification, difficulty selection, quantity options, and custom instructions field

8.1.2 Difficulty Levels and What They Actually Test

The three difficulty settings control more than complexity; they fundamentally change what cognitive skills the flashcards assess:

Level	Cognitive Focus	Typical Question Style
Easy	Recognition and recall of basic facts, terms, and definitions	"What is [term]?" or "Define [concept]"
Medium	Understanding relationships between concepts and identifying applications	"How does X relate to Y?" or "When would you use [method]?"

Hard	Analysis, synthesis, and evaluation requiring integration of multiple concepts	"Compare and contrast X and Y" or "What are the implications of [concept]?"
------	--	---

Most users gravitate toward Medium difficulty. This strikes a balance between accessibility and cognitive challenge, testing comprehension rather than mere memorization.

TIP

Start with Medium difficulty for your first pass through material. Use Easy for particularly dense or technical terminology that requires pure memorization (chemical formulae, legal definitions, technical specifications). Reserve Hard for final review sessions when testing whether you can synthesize concepts across sources.

8.1.3 Strategic Prompting for Advanced Flashcards

The custom instructions field transforms flashcards from simple memorization tools into sophisticated learning instruments. The key is specificity: tell NotebookLM exactly what cognitive skill you want to practice.

Example 1: Scenario-Based Decision-Making

Default prompt: "Create flashcards about machine learning algorithms"

Result: Basic definition cards ("What is gradient descent?")

Strategic prompt: "Create scenario-based flashcards that test my decision-making about choosing machine learning algorithms, not just definitions. Present real situations where I need to choose the right approach based on data characteristics, computational constraints, and problem requirements."

Result: Application cards ("You have a dataset with 50,000 samples, high dimensionality, and need real-time predictions. Which algorithm family would be most appropriate and why?")

Example 2: Distinguishing Confusing Terminology

Strategic prompt: "Create flashcards for the specific terms I keep confusing in reinforcement learning: policy vs value function, on-policy vs off-policy, model-based vs model-free. Ask me to explain the difference between similar concepts in one clear sentence each."

Result: Comparative cards that force articulation of distinctions rather than isolated definitions

Example 3: Process-Oriented Cards

Strategic prompt: "Create flashcards that test my understanding of the step-by-step process for conducting a systematic literature review in social sciences. Each card

should ask about what comes next in the process, why that step is necessary, or what happens if you skip it."

Result: Sequential process cards that test procedural knowledge

NOTE

The custom instructions field can accommodate detailed prompts. Use this space to specify exactly what kind of thinking you want the flashcards to develop. The more specific your instruction, the more tailored the output.

8.1.4 The 'Explain' Feature: Turning Gaps into Learning Moments

Every flashcard includes an 'Explain' button. When clicked, NotebookLM generates a detailed explanation of the concept with citations back to your source material. This transforms incorrect answers from failures into learning opportunities.

The explanations appear in the Chat panel, where you can continue asking follow-up questions. This creates a feedback loop: flashcard → explanation → deeper question → refined understanding.

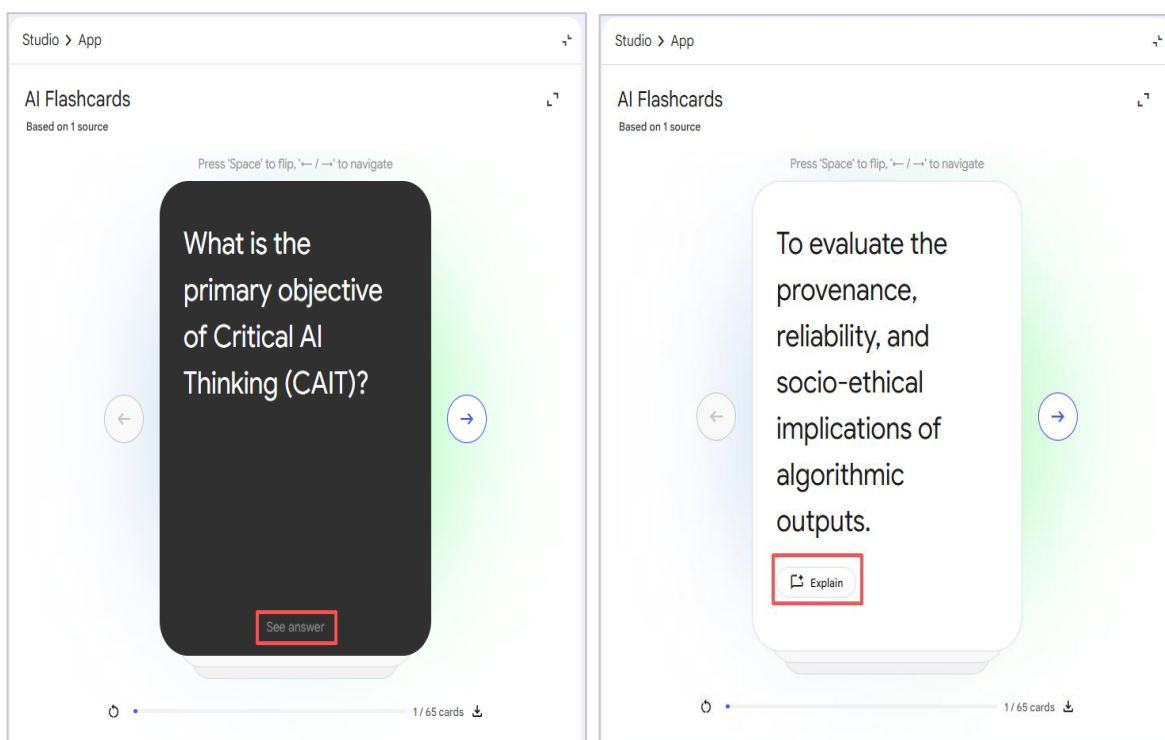


Figure 8.2: Flashcard interface showing the 'Explain' button

8.1.5 Source Selection and Topic Focusing

You can temporarily enable or disable specific sources before generating flashcards. This is crucial when you have a notebook with diverse materials but want flashcards focused on particular readings.

Scenario: Your notebook contains 15 sources covering both theoretical foundations and practical applications of neural networks. For your upcoming exam, you need to focus exclusively on the mathematical foundations.

Solution: In the Sources panel, temporarily deselect all application-focused sources. Generate flashcards with the instruction: "Create flashcards testing mathematical derivations and proofs for backpropagation, gradient descent, and activation functions. Focus on why these mathematical properties matter, not just definitions."

The Topic field provides additional focusing. Use it to narrow the scope:

- Topic: 'Chapter 3 only' + Custom instruction: 'Focus on the experimental methodology'
- Topic: 'Ethical considerations' + Custom instruction: 'Create scenario-based cards about ethical dilemmas'
- Topic: 'Statistical methods' + Custom instruction: 'When to use each test'

WARNING

Source selection for flashcards is temporary. When you navigate away from the Studio panel or create a different output, your source selection reverts to all sources enabled. If you need consistent source filtering, consider creating separate notebooks for different topics.

8.1.6 Sharing and Daily Limits

Generated flashcard sets persist in your Studio panel and can be shared via link. Recipients don't need NotebookLM accounts to study the flashcards; the link provides access to the interactive flashcard interface.

The free tier allows 10 flashcard generations per day. Crucially, this limit applies to generation, not usage. Once created, you can study a flashcard set unlimited times. The strategic implication: generate diverse flashcard sets during your study sessions to create a library you can review repeatedly.

Example daily allocation strategy:

- 3 sets: Core terminology (Easy difficulty)
- 4 sets: Concept relationships (Medium difficulty)
- 3 sets: Application scenarios (Hard difficulty, custom instructions)

8.2 Quizzes: Testing Comprehension and Synthesis

NotebookLM's quiz feature generates multiple-choice questions with explanations for both correct and incorrect answers. Unlike flashcards, which test recall through open-ended responses, quizzes provide answer options; making them excellent for testing

whether you can discriminate between similar concepts or identify correct applications in context.

8.2.1 Quiz Creation and Structure

The quiz creation interface mirrors flashcards: select difficulty, choose quantity, specify topic, and add custom instructions. The key difference lies in output format and cognitive assessment.

Each quiz question includes:

- A question stem
- Multiple answer options (typically 4)
- Indication of correct answer
- 'Explain' button providing detailed rationale
- Citations to source material

The multiple-choice format is particularly effective for identifying misconceptions. Good quiz questions include plausible distractors; incorrect answers that seem reasonable if you have incomplete understanding.

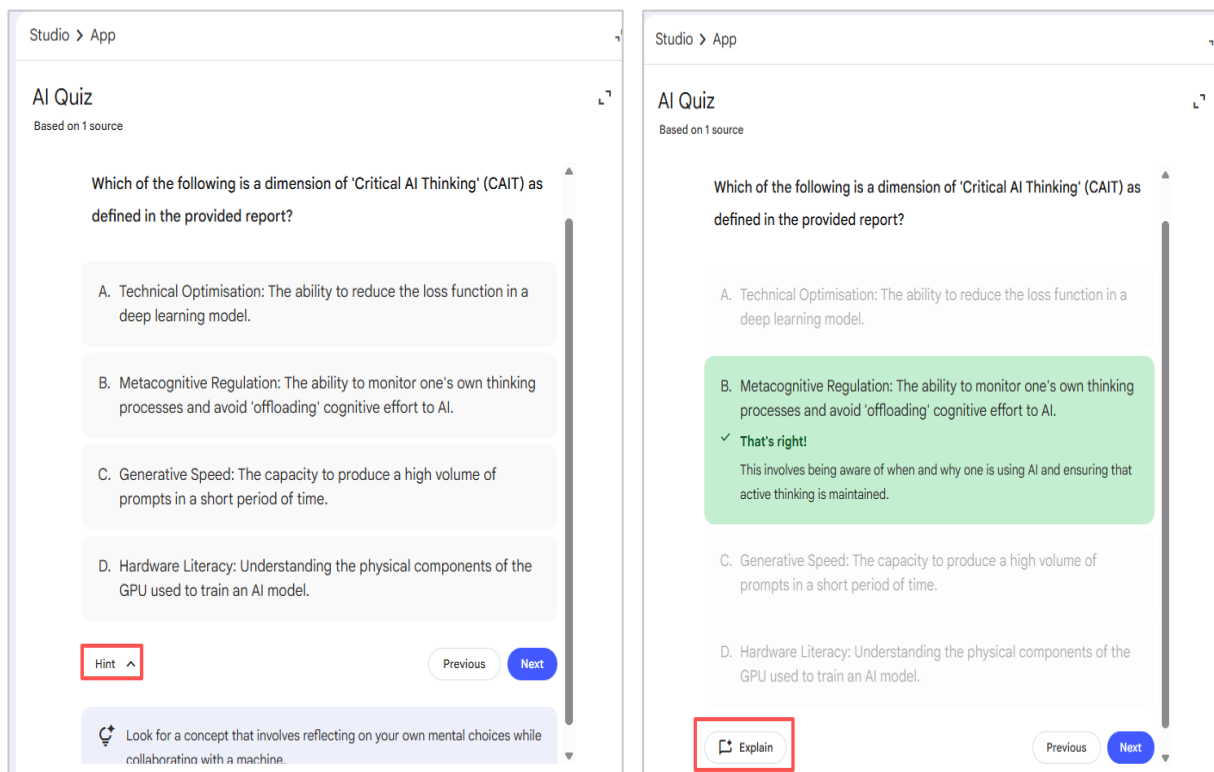


Figure 8.3: Quiz interface showing a multiple-choice question with answer options and the 'Explain' button

8.2.2 Difficulty Progression in Quizzes

Quiz difficulty levels differ from flashcard difficulty in important ways:

Easy quizzes test factual recall with straightforward answer options: "Which of the following best defines [term]?"

Medium quizzes require understanding and application: "In which scenario would you use [method] rather than [alternative]?"

Hard quizzes demand synthesis and evaluation: "Given these three constraints, which approach would be most appropriate, and what would be the primary trade-off?"

The sophistication also appears in the answer options. Easy quizzes might include obviously wrong distractors. Hard quizzes present multiple partially-correct options, forcing you to identify the most appropriate answer given specific constraints.

TIP

Read all answer options before selecting. Hard quiz questions often include multiple answers that are technically correct in different contexts. The question stem's specific constraints determine which is most appropriate. This mirrors real-world decision-making where multiple solutions exist but context determines the best choice.

8.2.3 Custom Instructions for Advanced Quizzes

Strategic quiz prompts transform quizzes from knowledge checks into advanced assessment tools that mirror real-world problem-solving.

Example 1: Integration Across Concepts

Strategic prompt: "Create quiz questions that require me to combine multiple concepts from database systems, normalization, indexing, query optimisation, and transaction management, to solve real implementation problems. Don't test concepts in isolation; test whether I understand how they work together."

Example result: "Your database shows slow query performance despite having indexes on frequently queried columns. You discover many queries use range searches on multiple columns. Transactions frequently experience deadlocks. What is the most likely cause, and what should you address first?"

This question requires understanding index efficiency, query patterns, transaction isolation, and the interplay between these systems.

Example 2: Troubleshooting and Debugging

Strategic prompt: "Create quiz questions that present symptoms of problems in data analysis pipelines. Each question should describe what's going wrong and ask me to identify the most likely cause based on the symptoms. Focus on realistic debugging scenarios."

Example result: "Your machine learning model performs excellently on training data (98% accuracy) but poorly on test data (65% accuracy). The training set has 10,000 samples, and you're using a deep neural network with 5 hidden layers. What's the most likely issue?"

Example 3: Comparative Analysis

Strategic prompt: "Create quiz questions that ask me to compare and contrast different research methodologies discussed in the sources. Each question should present a research scenario and ask which methodology would be most appropriate and why, considering practical constraints like time, budget, and access to participants."

NOTE

The most valuable quiz questions are those you get wrong because they reveal gaps in your understanding. When you answer incorrectly, use the Explain feature extensively and consider creating follow-up flashcards specifically targeting that knowledge gap.

8.2.4 The Explain Feature in Quizzes

Quiz explanations differ from flashcard explanations in a crucial way: they explain why the correct answer is right and why the incorrect answers are wrong. This is pedagogically powerful; understanding why wrong answers are tempting helps you identify and correct misconceptions.

Effective use of quiz explanations:

1. Read the explanation even when you answer correctly; it often provides additional context or nuances you might have missed
2. Pay particular attention to why your chosen wrong answer was incorrect; this reveals your reasoning flaw
3. Use citations to revisit source material for deeper understanding
4. Follow up with Chat questions if the explanation raises new questions

The explanations appear in the Chat panel, creating an audit trail of your learning journey. You can review these explanations later to reinforce concepts.

8.2.5 Quizzes vs Flashcards: When to Use Each

Flashcards and quizzes serve different cognitive functions. Understanding when to use each optimizes your learning efficiency.

Characteristic	Flashcards	Quizzes
Primary cognitive skill	Active recall: retrieving information from memory without cues	Recognition and discrimination: identifying correct information among options
Best for	Learning new material, memorizing terminology, internalizing concepts	Testing comprehension, identifying misconceptions, exam preparation

Difficulty level	Higher cognitive load; you must generate the answer	Lower initial load; you recognize the answer among options
Reveals	What you don't know at all	What you think you know but misunderstand
Strategic timing	Early learning, spaced repetition, daily review	Mid-to-late learning, before assessments, verification of understanding

Recommended progression: Start with flashcards to build foundational knowledge through active recall. Once comfortable with basic retrieval, move to quizzes to test whether you can apply that knowledge and discriminate between similar concepts. Return to flashcards periodically for spaced repetition.

TIP

Consider using flashcards for your first pass through material and quizzes for your second pass. The flashcards build the knowledge foundation; the quizzes reveal whether that foundation is solid or contains misconceptions requiring correction.

8.3 Data Tables: Transforming Scattered Information into Structured Analysis

Introduced in December 2025, Data Tables address one of the most time-consuming aspects of research and learning: manually compiling scattered information into structured formats. NotebookLM synthesizes information from your sources into clean, organized tables that can be exported directly to Google Sheets for analysis, collaboration, and integration into larger workflows.

8.3.1 What Data Tables Are and Why They Matter

Research consistently shows that McKinsey estimates knowledge workers spend approximately 20% of their time searching for and gathering information. Much of this time involves extracting key facts from lengthy documents and manually organizing them into spreadsheets for comparison or analysis. Data Tables automate this tedious process.

Unlike flashcards and quizzes, which focus on learning and retention, Data Tables focus on organization and analysis. They transform unstructured prose into structured data you can sort, filter, and manipulate.

Common use cases:

- **Academic research:** Synthesize findings across multiple studies (methodology, sample size, key results, limitations)

- **Comparative analysis:** Compare products, theories, approaches, or case studies side-by-side
- **Historical timelines:** Organize events by date, key figures, causes, and consequences
- **Meeting notes:** Extract action items from transcripts with owner, priority, and deadline
- **Curriculum mapping:** Align learning objectives, standards, and assessments across units

NOTE

Data Tables launched initially for NotebookLM Pro and Ultra subscribers in December 2025, with free-tier access rolling out over subsequent weeks. Check your Studio panel to confirm availability.

8.3.2 Creating Data Tables

Data Tables are accessed from the Studio panel. The creation workflow:

1. Navigate to Studio panel
2. Click 'Data Table'
3. (Optional) Select output language
4. Describe in natural language what table you want: specify rows, columns, and what information to extract
5. Click 'Generate'

The resulting table appears in the Studio panel. You can then view the prompt used, export to Google Sheets, or delete the table.

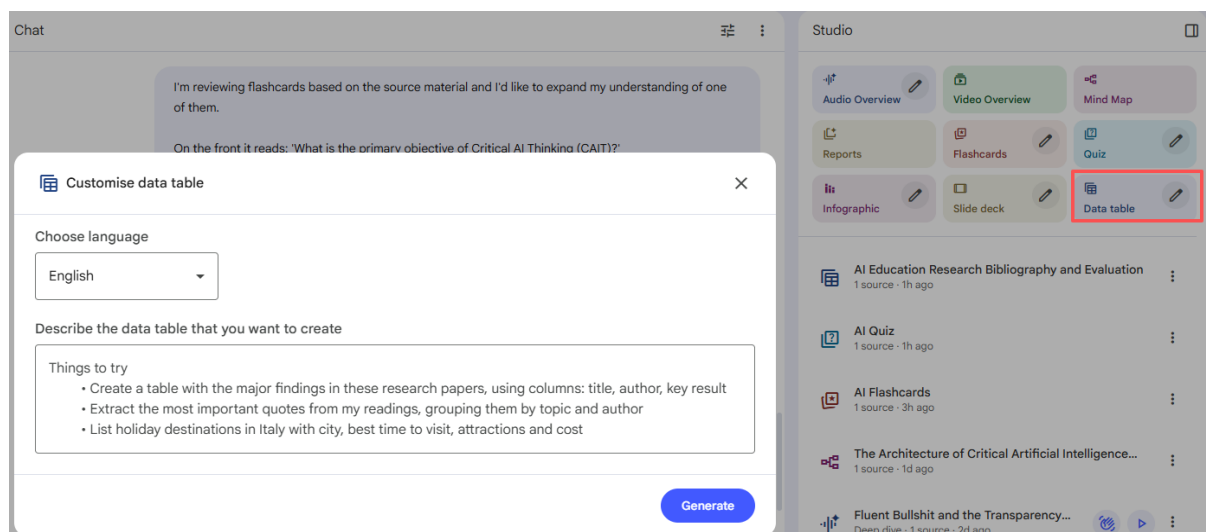


Figure 8.4: Data Table creation interface showing the natural language prompt field and language selection

Critical limitation: Tables are not interactive within NotebookLM. You cannot edit cells, add rows, or modify structure in the interface. To make changes, you must either regenerate the table with a modified prompt or export to Google Sheets and edit there.

WARNING

Unlike Google Sheets formulas that update when source data changes, NotebookLM Data Tables are static snapshots. If you update your source documents, you must regenerate the table to reflect those changes. The table does not automatically sync with evolving sources.

8.3.3 Strategic Prompting for Different Table Types

The quality of your data table depends entirely on prompt specificity. Generic prompts produce generic tables. Strategic prompts produce precisely structured data ready for analysis.

Example 1: Literature Review Synthesis

Generic prompt: "Create a table comparing the studies"

Result: Inconsistent columns, missing key information

Strategic prompt: "Create a table synthesizing the uploaded research papers on climate adaptation. Columns: Author & Year, Study Location, Sample Size, Methodology (qualitative/quantitative/mixed), Primary Finding (one sentence), Limitations Noted, Relevance to Urban Settings (high/medium/low). Sort by publication year, most recent first."

Result: Structured table ready for meta-analysis or systematic review

Example 2: Competitor Analysis

Strategic prompt: "Create a competitor comparison table. Columns: Company Name, Pricing Model, Key Features, Target Market, Strengths (based on sources), Weaknesses (based on sources), Market Share (if available). Include only SaaS project management tools mentioned in the uploaded market analysis reports."

Result: Side-by-side comparison enabling strategic positioning decisions

Example 3: Historical Timeline

Strategic prompt: "Create a timeline table of the French Revolution. Columns: Date (YYYY-MM-DD format for sorting), Event Name, Key Figures Involved, Immediate Consequences, Long-term Significance. Cover period from 1789-1799. Sort chronologically."

Result: Chronological study guide with sortable dates

Example 4: Action Items from Meeting Transcripts

Strategic prompt: "Extract all action items from the uploaded meeting transcript. Columns: Action Item (specific task), Owner (person responsible), Priority

(high/medium/low based on discussion urgency), Deadline (if mentioned, otherwise 'TBD'), Context (brief note on why this matters). Sort by priority, then deadline."

Result: Actionable task list ready for project management tools

Key prompting principles:

- **Specify exact column names** - Don't let the AI infer structure
- **Define data formats** - Dates (YYYY-MM-DD), numbers (with/without units), categories (high/medium/low)
- **Specify sorting criteria** - Most recent first, alphabetical, by priority, etc.
- **Indicate scope boundaries** - Which sources to include, which time period, which categories
- **Request specific evidence formats** - "One sentence summaries", "bullet points", "numerical values only"

TIP

If your first table doesn't have the structure you need, don't edit the prompt and regenerate immediately. First export to Google Sheets to see how the data looks in a sortable, filterable format. You may discover the structure is more useful than it initially appeared. Then decide whether to modify and regenerate or simply edit in Sheets.

8.3.4 Export to Google Sheets and Post-Processing

The real power of Data Tables emerges after export. Google Sheets provides sorting, filtering, formulas, charts, and sharing capabilities that transform static tables into dynamic analysis tools.

Exporting process:

1. Click the three-dot menu next to your generated Data Table
2. Select 'Export to Sheets'
3. NotebookLM creates a new Google Sheet in your Drive
4. The Sheet opens in a new tab, ready for manipulation

Strategic post-processing workflows:

For literature reviews: Add columns for your own analysis (relevance score, thematic category, citation tracking). Use filters to view only high-quality studies or specific methodologies. Create pivot tables to count methodology types or publication years.

For comparative analysis: Use conditional formatting to highlight best-in-class features or concerning gaps. Add weighted scoring columns to rank options. Create comparison charts visualizing key metrics.

For timelines: Convert dates to proper date format for chronological sorting. Add duration columns calculating time between events. Create Gantt-style charts showing temporal relationships.

For action items: Add status tracking column (not started, in progress, completed). Use data validation for consistent category selection. Create dashboard view showing overdue items or items by owner.

Important: The exported Sheet is a standalone copy. Changes you make in Sheets do not sync back to NotebookLM. If you regenerate the Data Table in NotebookLM, it creates a new Sheet; your previous edits are not carried forward. This is by design: NotebookLM generates the initial structure; Sheets is where you build analysis on top of that foundation.

NOTE

You can also export Briefing Docs, and saved Notes to Google Docs or Sheets (if they contain tables). This export functionality extends beyond just Data Tables to other Studio panel outputs.

8.3.5 Data Tables for Learning and Research

While Data Tables are valuable for business and project management contexts, they serve equally important learning functions:

Comparative learning tables expose patterns and contrast that prose obscures. When studying multiple theories, approaches, or historical events, a well-structured table makes similarities and differences immediately visible.

Example learning scenario: Psychology student studying learning theories across behaviourism, cognitivism, and constructivism.

Strategic prompt: "Create a comparison table of learning theories. Columns: Theory Name, Key Proponents & Years, Core Assumptions About Learning, Role of Learner, Role of Teacher, Strengths, Limitations, Example Classroom Application. Include behaviourism, cognitivism, constructivism, and social learning theory."

Result: Side-by-side comparison revealing philosophical differences and practical implications. Student can quickly see how each theory answers fundamental questions about learning, making exam questions about comparing theories much easier to answer.

Integration with other learning tools:

- **Generate Data Table first** to organize scattered information
- **Export to Sheets and study the patterns** - What trends emerge? What's missing?
- **Generate flashcards targeting gaps** revealed by table analysis

- **Create quizzes** asking you to recall table information or make comparisons without seeing the table
- **Use table as reference** while working through study guide essay questions

This progression moves from organization (Data Table) → comprehension (studying patterns) → memorization (flashcards) → application (quizzes) → synthesis (study guide essays).

8.4 Integrated Learning Systems: Combining Tools Strategically

The true power of NotebookLM's learning tools emerges when you use them in combination, each addressing different cognitive needs within a comprehensive learning system.

8.4.1 The Three-Tool Learning Cycle

An effective learning cycle integrates Data Tables, Flashcards, and Quizzes in a precise sequence designed to move information from passive observation to active mastery:

Phase 1: Structural Organization (Data Tables)

Begin by transforming scattered source material into structured **Data Tables**. This phase is about "de-cluttering" the prose to reveal the underlying logic of the subject.

- **The Action:** Generate comparative tables, timelines, or thematic synthesis tables.
- **The Goal:** Identify patterns, gaps, and contradictions that aren't obvious in standard text. Use these tables to create the primary mental scaffolding for your topic.

Phase 2: Knowledge Encoding (Flashcards)

Once the structure is visible, use **Flashcards** to anchor specific concepts into your memory. Instead of general overviews, focus on the high-friction areas identified in Phase 1.

- **The Action:** Generate flashcards targeting complex definitions or relationships found in your Data Tables. Use custom instructions to ensure the cards challenge your specific "knowledge gaps."
- **The Goal:** Strengthen neural pathways through **spaced repetition**. Engage with these sets daily to move information from short-term grasp to long-term retention.

Phase 3: Comprehension Verification (Quizzes)

After a few days of encoding, use **Quizzes** to test your ability to apply and discriminate between concepts in a simulated "high-stakes" environment.

- **The Action:** Take quizzes under exam-like conditions. Focus on synthesis questions that require you to connect multiple data points.
- **The Goal:** Use the "Explain" feature for any incorrect answers to immediately correct misconceptions. This turns a "test" into a feedback loop.

Phase 4: Iterative Refinement

Learning is rarely linear. Use the results of your quizzes to circle back and sharpen your tools.

- **Refinement Loop: Update:** Add notes to your Data Tables based on quiz feedback.
 - **Target:** Generate new Flashcards for the specific concepts you missed in the quiz.
 - **Escalate:** Increase quiz difficulty via custom instructions to test your knowledge from new, more complex angles.

8.4.2 Subject-Specific Integration Strategies

Different subjects benefit from different tool combinations and emphases.

STEM Subjects (Mathematics, Physics, Chemistry, Computer Science)

- **Data Tables:** Algorithm comparisons (time complexity, space complexity, use cases), formula reference sheets, problem type categorization
- **Flashcards:** Formulae, definitions, proof steps, algorithm complexities
- **Quizzes:** Problem-solving scenarios, choosing appropriate methods, identifying errors in solutions

Humanities and Social Sciences

- **Data Tables:** Theory comparisons, historical timelines, research synthesis across studies, thematic analysis matrices
- **Flashcards:** Key thinkers and their contributions, theoretical frameworks, seminal studies
- **Quizzes:** Comparing theories, analyzing arguments, applying frameworks to case studies

Professional Certification Exams

- **Data Tables:** Specification comparisons, compliance requirement matrices, exam domain coverage tracking
- **Flashcards:** Technical specifications, standards, regulations, compliance requirements
- **Quizzes:** Scenario-based questions matching exam format, ethical dilemmas, best practice selection

💡 TIP

Create subject-specific notebooks with sources organised by topic or chapter. This allows you to generate focused flashcards and quizzes for individual topics while maintaining the ability to create cross-topic Data Tables by selecting all sources.

8.5 Advanced Considerations and Limitations

8.5.1 Daily Limits and Strategic Allocation

The free tier imposes daily limits on learning tool generation:

- 10 flashcard sets per day
- 10 quizzes per day
- Data Tables limits vary by tier (initially Pro/Ultra only, rolling out to free tier)

Strategic allocation across a study day:

1. Morning session: Generate Data Tables for organization, 3 flashcard sets (terminology review), 2 quizzes (previous day's material)
2. Afternoon session: 4 flashcard sets (new material), 1 study guide (comprehensive)
3. Evening session: 3 flashcard sets (challenging topics), 3 quizzes (integration testing)
4. Reserve capacity: 4 quizzes, 0 flashcards (adjust based on discovered gaps)

Remember: limits apply to generation, not usage. Once created, you can study flashcards, retake quizzes, and reference Data Tables unlimited times.

⚠️ WARNING

Daily limits reset at midnight UTC, not your local time zone. If you're in a time zone significantly offset from UTC, your 'day' may not align with when limits reset. Plan accordingly, especially during intensive study periods.

8.5.2 Quality Control and Verification

All learning tools generate content from AI, which means they may occasionally include inaccuracies, oversimplifications, or miss nuances present in your sources. Effective learning requires critical engagement:

Always verify against sources. Use the citation links provided in explanations to check the original material. For Data Tables, spot-check a few rows against your sources to confirm accuracy.

Question suspicious answers. If a flashcard answer, quiz explanation, or table entry seems inconsistent with what you've learned, investigate. The AI might have misinterpreted context.

Supplement with original study. Learning tools are aids, not replacements. Read your source material directly. Use learning tools to reinforce and test, not as sole learning sources.

Cross-reference complex topics. For particularly important or complex concepts, verify against multiple sources or authoritative references beyond your notebook.

The grounding in your sources significantly reduces hallucination risks compared to general AI tools, but critical thinking remains essential.

8.5.3 Privacy and Sharing Considerations

When you share flashcards, quizzes, or export Data Tables, recipients access the learning materials but not your underlying sources. They see the questions, answers, explanations, and table data but cannot access your uploaded documents.

Implications for academic contexts:

- Sharing learning materials, you've created is generally appropriate for collaborative study
- Do not share materials if your course prohibits collaborative study tools
- Be cautious about sharing if your sources include copyrighted material with distribution restrictions
- Exported study guides (Google Docs) and Data Tables (Google Sheets) follow standard Google Drive sharing permissions

For professional contexts, be mindful of confidential or proprietary information in your sources. Even though recipients don't see the sources, the generated learning materials and Data Tables may contain details you don't want distributed.

8.6 Real-World Learning Scenarios

The following scenarios demonstrate how to synchronize **Data Tables**, **Flashcards**, and **Quizzes** to master complex subjects efficiently.

8.6.1 Scenario 1: Medical Student Preparing for Exams

Context: Third-year medical student with 12 textbook chapters, 8 lecture decks, and 15 research articles on cardiology. Exam in 4 weeks.

- **Week 1: Structural Foundation**
 - **Data Table:** Create a "Master Cardiac Comparison Table." Columns: *Condition, Pathophysiology, Classic Presentation, Diagnostic Tests, First-line Treatment.*

- **Action:** Export to Sheets to visualize "overlap" symptoms (e.g., which conditions present with chest pain vs. dyspnea).
- **Flashcards:** Generate 5 sets on fundamental anatomy and pharmacology (Easy-Medium difficulty) to "prime" the brain.
- **Weeks 2-3: Clinical Reasoning**
 - **Flashcards:** Use custom prompts: *"Create scenario-based flashcards. Give me a patient presentation; I must provide the most likely diagnosis and the 'next best step' in management."*
 - **Quizzes:** Generate clinical vignettes. Use the **Explain** feature whenever a distractor (wrong answer) trip you up to understand the nuance between similar pathologies.
- **Week 4: High-Stakes Integration**
 - **Quizzes:** Set difficulty to **Hard**. Use custom instructions: *"Test me on patients with multiple comorbidities (e.g., heart failure + renal failure) where drug interactions are a factor."*
 - **Review:** Use the **Data Table** for a final rapid-fire comparison of diagnostic criteria.

8.6.2 Scenario 2: Software Engineer Learning New Technology

Context: Learning Kubernetes for work. Sources: official documentation, architecture diagrams, and troubleshooting guides. Timeline: 3 weeks.

- **Week 1: Architectural Mapping**
 - **Data Table:** Create an "Object Comparison Table." Columns: *Object Type (Pod, Service, Deployment), Primary Purpose, YAML Key Parameters, Common Failure States.*
 - **Flashcards:** Focus on terminology and CLI commands.
 - **Goal:** Build a mental map of how the control plane interacts with nodes.
- **Week 2: Troubleshooting & Logic**
 - **Flashcards:** *"Present a scenario where a Pod is in 'ImagePullBackOff' or 'CrashLoopBackOff.' Ask me for the three most likely causes."*
 - **Quizzes:** Focus on practical application. *"If I need to expose a deployment to the public internet with a static IP, which Kubernetes objects do I need to configure?"*
- **Week 3: Scaling and Security**
 - **Quizzes:** Use hard-mode instructions to cover networking, secrets management, and RBAC (Role-Based Access Control).
 - **Action:** Reference the **Data Table** specifically for "When to use X vs Y" (e.g., StatefulSet vs. Deployment).

8.6.3 Scenario 3: Graduate Student Literature Review

Context: Doctoral candidate synthesizing 40 papers on climate change adaptation.

Goal: Identify gaps and theoretical frameworks.

- **Phase 1: The Synthesis Matrix**
 - **Data Table:** This is the anchor. Columns: *Author/Year, Methodology, Sample Size, Key Finding, Theoretical Framework, Limitations, and Research Gap Identified.*
 - **Action:** Use Sheets to filter by "Methodology" to see if qualitative studies are producing different results than quantitative ones.
- **Phase 2: Deep Component Testing**
 - **Flashcards:** For seminal papers, create cards asking: *"What was the specific critique of [Author B]'s methodology in [Author A]'s study?"* *
Goal: Move beyond "what the paper said" to "how the papers talk to each other."
- **Phase 3: Relational Synthesis**
 - **Quizzes:** Instead of a study guide, use Quizzes with synthesis prompts: *"Compare the adaptation strategies in South Asia vs. Sub-Saharan Africa. What are the three recurring contradictions in the findings?"*
 - **Refinement:** Use the quiz results to add a "Cross-Reference" column to your original **Data Table**.

Key Takeaways

1. Flashcards excel at building foundational knowledge through active recall; quizzes test whether you can apply and discriminate; data tables transform scattered information into analyzable structures. Each serves distinct cognitive and organizational functions.
2. Custom instructions transform generic learning tools into sophisticated instruments tailored to your specific learning goals. The more specific your prompt, the more valuable the output. This applies equally to flashcards, quizzes, and data tables.
3. Data Tables are static snapshots that must be regenerated when sources change. They are not interactive within NotebookLM; export to Google Sheets for sorting, filtering, analysis, and collaboration.
4. Strategic prompting creates scenario-based flashcards that test decision-making, quizzes that require synthesis, and data tables with precisely defined columns and structures. Move beyond basic terminology testing and generic organization.
5. The Explain feature is not merely for checking answers; it's a learning tool. Use it extensively to understand both correct reasoning and why wrong answers are tempting (revealing misconceptions). In Data Tables, verification against sources remains essential.
6. Source selection, the Learning Guide chat mode, and strategic export workflows create personalized learning experiences. Combine tools systematically: Data

Tables for organization → Flashcards for encoding → Quizzes for verification → iterate based on revealed gaps.

7. Daily limits constrain generation but not usage. Build a library of diverse learning materials you can review repeatedly. Allocate your daily generation capacity strategically based on current learning phase. Data Tables in exported Sheets persist beyond generation limits.
8. All AI-generated content requires critical verification. Use citation links to check source material, question suspicious content, and supplement with original study. Learning tools are aids, not replacements for direct engagement with material. Data Tables require spot-checking for accuracy.

What's Next: Chapter 9 explores NotebookLM's collaboration features; sharing notebooks, creating public notebooks with analytics, and using NotebookLM in team contexts. We examine access controls, version management, and how collaborative notebooks change the dynamics of knowledge sharing in educational and professional settings.

PART VI: COLLABORATION AND SHARING

Chapter 9: Sharing, Public Notebooks, and Analytics

🔗 LEARNING OBJECTIVES

By the end of this chapter, you will be able to:

1. Configure private sharing with appropriate access levels (Viewer vs. Editor) for different collaboration scenarios
2. Create and manage public notebooks using both full notebook and chat-only sharing modes
3. Navigate and effectively utilize featured notebooks for professional development and research
4. Interpret usage analytics to understand notebook engagement and optimize shared resources
5. Design collaboration workflows that leverage NotebookLM's sharing capabilities for teaching, research, and student projects

NotebookLM transforms from a personal research tool into a collaborative platform through its comprehensive sharing ecosystem. Introduced in June 2025, public notebook sharing has enabled over 140,000 public notebooks to be created within the first month alone, whilst featured notebooks curated by respected authors and publications provide professionally assembled knowledge bases on diverse topics. This chapter explores the full spectrum of collaboration, from private team sharing to public knowledge distribution, equipping educators, researchers, and students with strategies to amplify their work's impact.

9.1 Private Sharing Fundamentals

Before public notebooks existed, private sharing was NotebookLM's sole collaboration method; and it remains the foundation for team-based research and teaching. Understanding access levels, account-type limitations, and sharing workflows ensures secure, effective collaboration.

9.1.1 Access Levels: Viewer vs. Editor

NotebookLM offers two permission levels for private sharing:

Viewer Access provides read-only permissions. Viewers can:

- Read all sources and notes in the shared notebook
- Ask questions in the Chat panel (responses grounded in the notebook's sources)
- View pre-generated Studio artifacts (Audio Overviews, Study Guides, Mind Maps)

- Generate new artifacts from existing sources (but cannot add their own sources)

Viewers *cannot* upload new sources, edit existing sources, create or modify notes, or share the notebook further. This makes Viewer access ideal for distributing finished resources, such as study materials for students or reference notebooks for team members, without risking accidental modifications.

Editor Access grants nearly all owner privileges. Editors can:

- Add, remove, or replace sources
- Create, edit, and delete notes
- Generate and customize all Studio artifacts
- Share the notebook with additional collaborators (granting Viewer or Editor access)
- Create public share links (if the owner has this capability)

The key distinction: Editors cannot delete the notebook itself, change the notebook owner, or revoke the owner's access. Use Editor permissions for active collaborators contributing to research projects, co-teaching scenarios, or joint content creation.

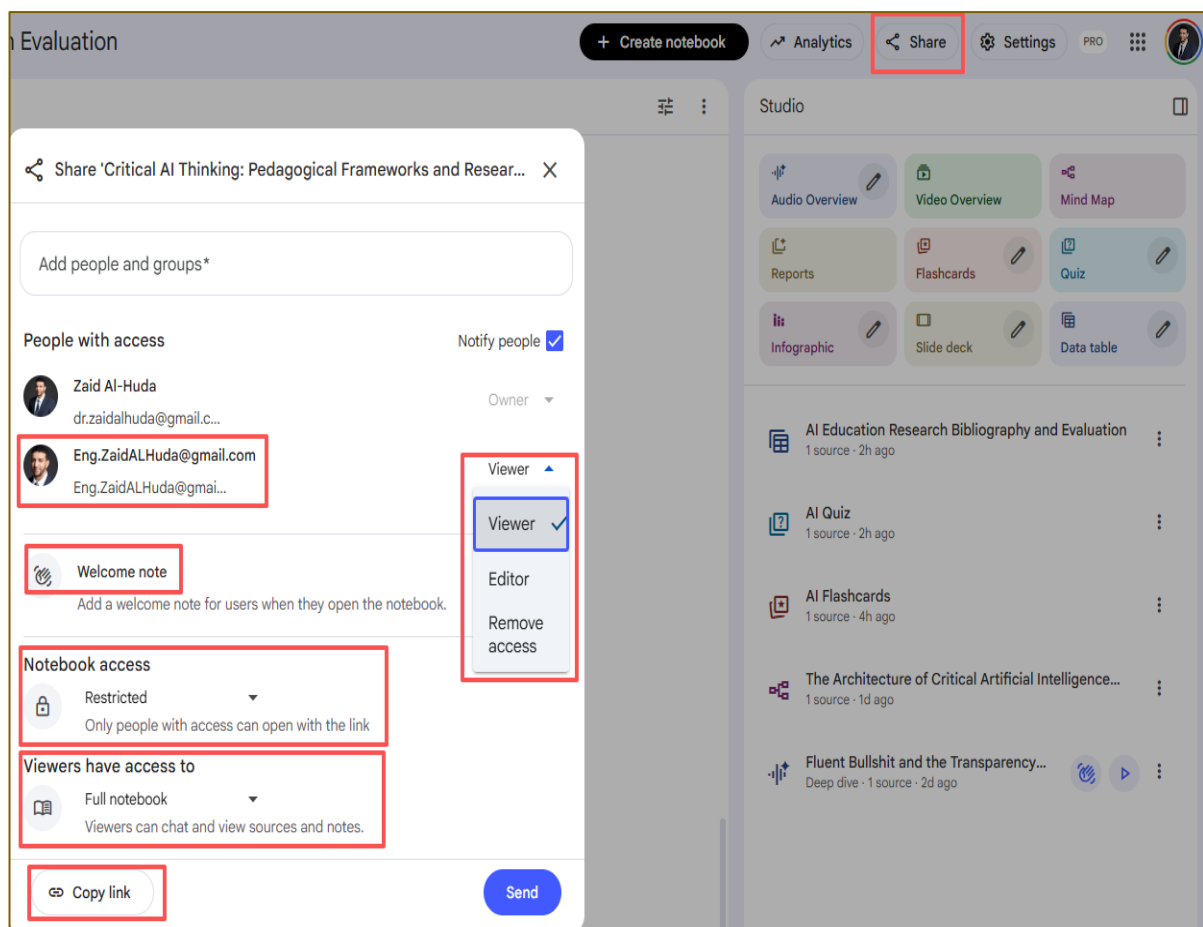


Figure 9.1: Sharing panel showing Viewer and Editor access level options with email invitation interface

💡 TIP

Strategic Access Assignment: Start collaborators as Viewers and upgrade to Editor only when necessary. This prevents accidental source deletions or configuration changes whilst maintaining collaborative benefits. For student group projects, designate one student as Editor (project lead) with others as Viewers who can still contribute via Chat.

9.1.2 Account Type Limitations and Workspace Sharing

NotebookLM's sharing capabilities vary significantly based on account type:

Account Type	Sharing Limits	Key Restrictions
Personal Gmail	Up to 50 individual users per notebook	Cannot share with Google Groups; must use individual email addresses
Workspace (Business/Enterprise)	Unlimited users within organization; supports Google Groups	Can only share with accounts in the same domain (e.g., @company.com)
Education	Unlimited users within organization; supports Google Groups	Restricted to same educational domain; public sharing restricted to same domain
NotebookLM Enterprise	Unlimited within project; granular IAM controls	Must be in same Google Cloud project and workforce pool; cannot share with personal accounts

⚠️ WARNING

Cross-Account Sharing Not Supported: You cannot share notebooks between personal Gmail accounts and Workspace/Education accounts, even if you control both. A researcher with a personal Gmail account cannot share directly with colleagues using university email addresses unless they're all on the same account type. Plan your account strategy before creating critical shared notebooks.

9.1.3 How to Share a Notebook Privately

The sharing process is straightforward but offers important configuration options:

Step 1: Access the Sharing Panel

Open your notebook and locate the Share button in the top-right corner of the interface. Click it to open the sharing configuration panel.

Step 2: Add Collaborators

In the "Add people and groups" field, enter email addresses. For Workspace or Education accounts, you can also enter Google Group names (e.g., research-team@university.edu). Personal Gmail accounts must add individual email addresses only.

Step 3: Set Access Level

Click the dropdown next to each invitee's email to select Viewer or Editor. The default is typically Viewer, which is the safer starting point.

Step 4: (NotebookLM Plus Only) Configure Chat-Only Sharing and Welcome Notes

If you have NotebookLM Plus (formerly Plus, now part of Pro or Enterprise subscriptions), you can choose between **Full Notebook** sharing (viewers access sources and artifacts) or **Chat-Only** sharing (viewers interact via Chat only, without seeing sources directly). Chat-Only mode is particularly useful for:

- Protecting sensitive source documents whilst allowing Q&A interaction
- Creating an AI assistant interface for HR policies or internal documentation
- Distributing study resources where you want students to engage through questions rather than passive reading

Plus users can also set a **Welcome Note** that appears at the top of the notebook for all users with access. Use this to provide context, instructions, or guidelines (e.g., "This notebook contains our Q2 product roadmap. Use Chat to ask questions about feature timelines.").

Step 5: Send Invitations

Click Send. Invitees receive an email notification with a direct link to the shared notebook. The shared notebook appears on their NotebookLM homepage under the "Shared with me" filter.

Step 6: Manage and Revoke Access

Return to the sharing panel at any time to change access levels or revoke sharing entirely. Click "Revoke access" next to a collaborator's email to remove their permission. They will no longer see the notebook in their "Shared with me" section.

TIP

Link Sharing for Quick Distribution: Instead of typing multiple email addresses, you can copy the share link (available in the sharing panel) and distribute it manually via Slack, email, or your LMS. Recipients must have appropriate account permissions (same Workspace domain, etc.) for the link to work.

9.2 Public Notebooks

Introduced in June 2025, public notebook sharing represents a fundamental shift in NotebookLM's capabilities. Public notebooks enable anyone with a Google account to access your research, educational materials, or curated knowledge bases through a single link, no email invitation required. Within the first month of release, over 140,000 public notebooks were created, demonstrating the feature's immediate impact.

9.2.1 When to Use Public Sharing

Public notebooks excel in scenarios where broad distribution outweighs access control:

- **Educational Resources:** Share study guides, exam prep materials, or course reference notebooks with entire cohorts or the public
- **Research Dissemination:** Publish literature reviews, dataset analyses, or methodology notebooks alongside academic papers
- **Nonprofit and Advocacy Work:** Distribute policy briefs, impact reports, or educational campaigns
- **Product Documentation:** Create interactive manuals, troubleshooting guides, or onboarding resources
- **Community Knowledge Bases:** Build topic-specific resource collections for hobbyist communities or professional networks

WARNING

Copyright and Permissions: Only share content you have the right to distribute publicly. Respect copyright laws and do not upload copyrighted materials (PDFs of textbooks, paywalled articles, proprietary reports) to public notebooks. Google's Terms of Service require proper licensing, and repeated infringement can result in account termination. For academic use, ensure all sources are open-access, Creative Commons-licensed, or properly authorized.

9.2.2 Creating a Public Notebook

The process mirrors private sharing but with crucial differences:

Step 1: Prepare Your Notebook

Before making a notebook public, ensure all sources are appropriate for public distribution and that you've generated any artifacts (Audio Overviews, Study Guides, Mind Maps) you want viewers to access. Public viewers can generate new artifacts but cannot edit sources or notes.

Step 2: Open Sharing Settings

Click the Share button in the top-right corner of your notebook.

Step 3: Set Access to 'Anyone with a Link'

In the sharing panel, locate the access level dropdown. By default, it shows "Restricted" (private). Change this to **"Anyone with a link"**. A globe icon (🌐) will appear next to the Share button, indicating the notebook is now public.

Step 4: Copy and Distribute the Link

NotebookLM generates a unique public URL (e.g., <https://notebooklm.google.com/notebook/xyz123>). Copy this link and share it through your preferred channels: course LMS, social media, website, email newsletters, or academic profiles.

Step 5: (Plus Users) Configure Chat-Only Mode

NotebookLM Plus users can specify whether to share the **full notebook** (viewers see sources and artifacts) or **chat-only** (viewers interact via Chat only). Chat-only public sharing creates an AI assistant experience: viewers ask questions and receive grounded answers without accessing underlying documents.

TIP

Pre-Generate Key Artifacts: Before making your notebook public, generate Audio Overviews, Study Guides, and Mind Maps. Public viewers can create new artifacts but often appreciate ready-made resources. For educational notebooks, pre-generate multiple Audio Overview formats (Deep Dive, Debate, Critique) to provide diverse learning pathways.

9.2.3 What Public Viewers Can and Cannot Do

Public notebook access provides significant functionality whilst protecting notebook integrity:

Public Viewers CAN:

- Read all source documents (unless chat-only mode is enabled)
- Ask questions via the Chat panel and receive source-grounded answers with citations
- Generate new artifacts (Audio Overviews, Study Guides, FAQs, Briefing Documents)
- View and interact with pre-generated artifacts created by the owner
- Select or deselect specific sources in the source panel to focus queries

Public Viewers CANNOT:

- Upload new sources or modify existing sources
- Create, edit, or delete notes
- Change notebook settings (goals, personas, style)
- See other viewers' Chat conversations (each viewer's Chat history is private)
- Share the notebook further or generate their own public links

This permission structure ensures that public notebooks remain stable reference resources whilst enabling rich interaction. A professor sharing exam prep materials

knows students can generate personalized study aids without accidentally deleting source content.

9.2.4 Managing and Revoking Public Access

Public notebooks require ongoing management. Return to the sharing panel at any time to:

- **Make the Notebook Private:** Change access from "Anyone with a link" back to "Restricted." The public link becomes invalid immediately, and previous visitors can no longer access the notebook.
- **Delete the Notebook:** Deleting a public notebook also invalidates all previously shared links.
- **Update Content:** Any changes made by owners or editors (new sources, updated notes, fresh artifacts) automatically appear to public viewers without requiring a new link.

NOTE

Link Persistence and Revocation: Once you generate a public link, it remains active until you manually revoke public access or delete the notebook. There is no automatic expiration. If you share a public notebook link on social media and later want to restrict access, you must explicitly change the sharing settings; the link won't expire on its own.

9.3 Featured Notebooks

Featured notebooks represent a curated extension of NotebookLM's public sharing ecosystem. Rather than user-generated content, featured notebooks are professionally assembled collections created in partnership with respected authors, researchers, publications, and nonprofits. Introduced alongside public sharing in mid-2025, they provide high-quality, vetted knowledge bases on diverse topics; from scientific explorations to travel guides to expert advice columns.

9.3.1 What Featured Notebooks Offer

Featured notebooks serve as both educational resources and demonstrations of NotebookLM's capabilities. Initial partners include:

- **The Economist:** Expert analysis and predictions from "The World Ahead" annual report, plus quarterly earnings reports from top global companies
- **The Atlantic:** Arthur C. Brooks' "How to Build A Life" advice columns
- **Academic Authors:** Eric Topol's longevity advice from "Super Agers," Jacqueline Nesi's science-backed parenting guidance from the Techno Sapiens newsletter
- **Research Organizations:** Our World In Data's long-term trends in human well-being, Yellowstone National Park geological and biodiversity guides
- **OpenStax Educational Content:** Free, peer-reviewed textbooks transformed into interactive notebooks for high school and university students

- **Literary Collections:** Complete works of Shakespeare with thematic exploration tools

Each featured notebook is pre-loaded with high-quality sources and often includes pre-generated artifacts like Audio Overviews and Mind Maps. For educators and researchers, they demonstrate best practices in source curation and notebook design.

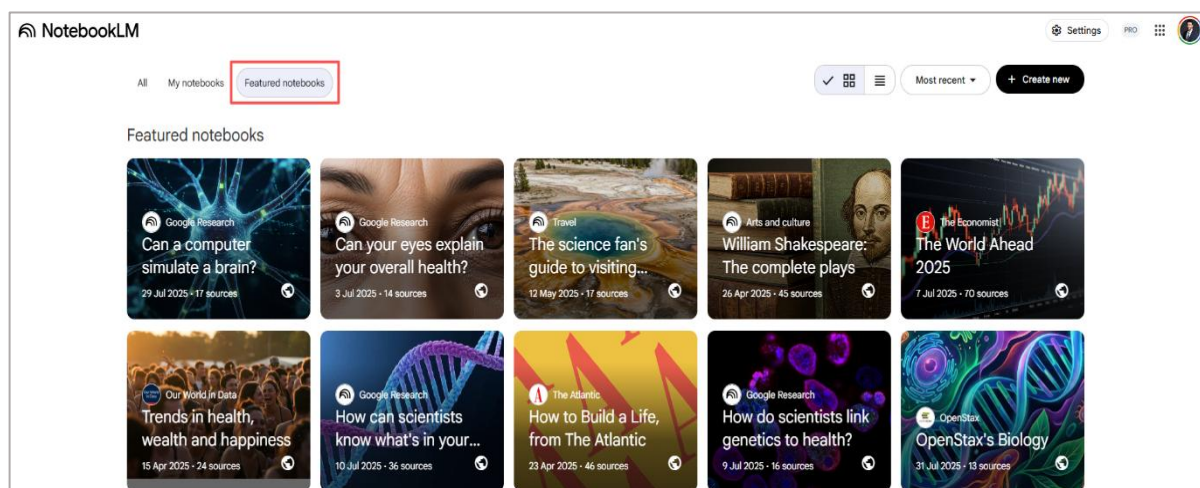


Figure 9.2: Featured Notebooks tab showing curated collection with cover images and partner logos

9.3.2 Accessing Featured Notebooks

Featured notebooks appear in a dedicated tab on NotebookLM's homepage:

1. **Navigate to NotebookLM Homepage:** From any notebook, click the NotebookLM logo or "Home" to return to your notebook list.
2. **Select the Featured Notebooks Tab:** Alongside "All," "My notebooks," and "Shared with me," you'll see a "Featured notebooks" tab. Click it to browse the curated collection.
3. **Browse and Open:** Each featured notebook displays a cover image (unlike user notebooks, which show emoji icons) and a brief description. Click any notebook to open it in viewer mode.

NOTE

Account Type Limitation: The Featured Notebooks tab is only available for consumer (personal Gmail) accounts. Workspace Enterprise or Education accounts can still access featured notebooks through direct URLs but won't see the in-app tab. If you're using a university or corporate account and want to explore featured notebooks, you may need to access shared links directly.

9.3.3 Interacting with Featured Notebooks

As a viewer of featured notebooks, you have essential but limited functionality:

What You Can Do:

- Read all original source materials in the source panel

- Ask questions in Chat mode and receive answers with inline citations
- Listen to pre-generated Audio Overviews and view pre-created Mind Maps
- Explore specific topics in depth using NotebookLM's grounding capabilities
- Select or deselect specific sources from the featured collection to narrow your queries

What You Cannot Do:

- Generate your own artifacts (Audio Overviews, Study Guides, etc.) from the featured sources
- Add your own sources to the featured notebook
- Create notes or annotations

This limitation is intentional: featured notebooks are designed as stable, curated resources. If you want to build on a featured notebook's sources with your own materials, you'll need to create a separate notebook and upload sources manually (respecting copyright restrictions).

TIP

Using Featured Notebooks for Course Design: Educators can use featured notebooks as ready-made course supplements. For example, the OpenStax Biology notebook provides a comprehensive, interactive textbook alternative. Direct students to specific featured notebooks via URL, then assign Chat-based exploration tasks: 'Ask three questions about photosynthesis and summarize the answers in your own words.' This leverages professionally curated content without requiring you to upload sources.

9.4 Usage Analytics

For creators of shared notebooks, understanding how collaborators engage with your resources is crucial. NotebookLM Plus offers usage analytics for public notebooks, providing insights into viewer activity and query patterns. This feature is particularly valuable for educators assessing student engagement, researchers tracking research dissemination, and organizations monitoring knowledge base usage.

9.4.1 What Analytics Measure

NotebookLM's usage analytics track two primary metrics over a rolling seven-day window:

1. **Users Per Day:** The number of unique users who made at least one query each day. This includes the notebook owner, so a notebook with zero external viewers will still show "1 user" on days the owner interacts with it.
2. **Queries Per Day:** The total number of Chat queries submitted by all users (including the owner) each day. This counts questions asked in the Chat panel, not artifact generation or source views.

Analytics update approximately every 24 hours, so data is not real-time. The seven-day window provides trend visibility without overwhelming detail.

9.4.2 Requirements for Analytics Access

To view usage analytics, your notebook must meet three criteria:

1. **NotebookLM Plus Subscription:** Only Plus (Pro) users see analytics. Free tier users cannot access usage metrics even for public notebooks.
2. **Minimum Sharing Threshold:** The notebook must be shared with at least four other users. This applies to both private and public sharing. A notebook shared with only two collaborators won't display analytics, even if you have Plus.
3. **Recent Chat Activity:** There must be some Chat activity (queries) within the past seven days. A notebook with no recent queries shows no analytics data.

The four-user minimum is a privacy threshold: it prevents identifying individual users' behaviour in small-scale sharing scenarios.

NOTE

Analytics Privacy: Analytics show aggregated daily metrics only; not individual user identities or specific queries. You can see that 15 users made 47 queries on Tuesday, but you cannot see which user asked what question. This protects viewer privacy whilst providing useful engagement insights.

9.4.3 Interpreting and Using Analytics

Usage analytics provide actionable insights for different audiences:

For Educators:

- **Engagement Monitoring:** Track whether students are interacting with shared study materials. A drop-off in queries might signal confusion, whilst sustained activity indicates active learning.
- **Resource Effectiveness:** Compare query volumes across different notebooks (e.g., lecture notes vs. exam prep guides) to identify which resources students find most valuable.
- **Timing Patterns:** Notice when students engage; spikes before exams suggest last-minute cramming, whilst steady daily use indicates ongoing study habits.

For Researchers:

- **Dissemination Impact:** Measure how widely your public research notebooks are being explored. High query counts indicate active engagement with your methodology or findings.
- **Collaboration Metrics:** For team research projects, verify that all co-investigators are actively using shared literature review notebooks.

For Organizations:

- **Knowledge Base Usage:** If you've created internal documentation notebooks (product specs, HR policies), analytics show whether employees are actually consulting them.

- **Training Effectiveness:** For onboarding or training materials, sustained query activity suggests new hires are engaging with resources; declining use might indicate unclear content.

TIP

Combining Analytics with Feedback: Analytics tell you 'how much' but not 'why.' Pair quantitative metrics with qualitative feedback. If analytics show low engagement with a study guide, ask students directly: Is the content unclear? Are the sources too technical? Use analytics as a diagnostic tool, then gather context through surveys or discussions.

9.5 Collaboration Workflows and Best Practices

Effective collaboration in NotebookLM requires strategic workflow design that aligns sharing features with project goals. This section provides audience-specific guidance for educators, researchers, and students.

9.5.1 Workflows for Educators

Scenario 1: Distributing Course Resources

Goal: Provide students with a comprehensive resource notebook for a course unit without risking accidental edits.

Workflow:

1. Create a notebook with all relevant sources: lecture slides, readings, supplementary articles.
2. Generate key artifacts: Audio Overview (Deep Dive format for comprehensive review), Study Guide, Mind Map.
3. Make the notebook public (if content is openly licensed) or share privately with Viewer access.
4. Post the link in your LMS or distribute via email.
5. (Plus users) Enable analytics to monitor engagement; check weekly to identify if certain topics need clarification.

Scenario 2: Student Group Projects

Goal: Enable collaborative research for a team project whilst maintaining structure.

Workflow:

1. Designate one student as the notebook owner (project lead).
2. Share the notebook with other team members: give Editor access to the research assistant (who will upload sources), Viewer access to writers (who will query the notebook for information).
3. Instruct students to use Notes for collaborative brainstorming and Chat for research queries.
4. At project completion, generate a final Report artifact summarizing findings.

9.5.2 Workflows for Researchers

Scenario 1: Team Literature Review

Goal: Collaboratively build a comprehensive literature base for a research project.

Workflow:

1. Create a shared notebook with all co-investigators as Editors.
2. Establish a protocol: each researcher uploads papers in their subdomain, tagged with Notes for context (e.g., "Methodology-Smith et al. 2024").
3. Use Chat collaboratively to synthesize findings: "What are the main methodological approaches across all sources?"
4. Generate a Briefing Document artefact to create a synthesis for grant proposals or manuscript introductions.

Scenario 2: Public Research Dissemination

Goal: Share research findings and methodology with the academic community.

Workflow:

1. After publication, create a public notebook containing your open-access paper, supplementary materials, dataset documentation, and related literature.
2. Generate an Audio Overview (Explainer format) to provide an accessible summary for non-specialist audiences.
3. Share the public link on your academic profile, in your paper's acknowledgments, or on social media.
4. (Plus users) Monitor analytics to see engagement levels, which can demonstrate research impact for tenure reviews.

9.5.3 Workflows for Students

Scenario 1: Collaborative Study Group

Goal: Create a shared study resource for exam preparation.

Workflow:

1. One student creates a notebook and uploads all available resources: lecture notes, textbook chapters, practice problems.
2. Share with study group members as Viewers (prevents accidental deletions during group study sessions).
3. Each student generates personalized Flashcards based on their weak areas.
4. Use Chat to quiz each other: "Explain the mechanism of photosynthesis" and verify answers against source citations.

Scenario 2: Individual Research Project

Goal: Manage sources and receive feedback from a supervisor.

Workflow:

1. Create a notebook for your thesis or capstone project, uploading all relevant literature.
2. Share with your supervisor as a Viewer, allowing them to ask questions and verify your understanding without modifying your sources.

3. Use Notes to track ideas and Chat to test arguments: "What evidence supports the hypothesis that X causes Y?"
4. Generate a Report artifact to create a literature review draft, then refine it manually.

TIP

Version Control for High-Stakes Projects: NotebookLM doesn't offer built-in version control. For critical collaborative projects (dissertation research, grant proposals), periodically export or duplicate your notebook. Create "Literature Review v1," "Literature Review v2" as separate notebooks at key milestones. This prevents catastrophic data loss if an Editor accidentally deletes crucial sources.

KEY TAKEAWAYS

Master these collaboration strategies:

1. Private sharing offers two access levels, Viewer (read-only, ideal for distributing finished resources) and Editor (full collaboration, suitable for active co-creation), with significant limitations based on account type (personal Gmail limited to 50 users, Workspace/Education restricted to same domain).
2. Public notebooks enable broad distribution through a single link, with Plus users gaining chat-only sharing mode and welcome notes; public viewers can interact extensively (Chat, artifact generation) but cannot modify sources or settings, ensuring resource stability.
3. Featured notebooks provide professionally curated, high-quality knowledge bases from partners like The Economist and OpenStax; whilst viewers cannot generate artifacts or add sources, these notebooks demonstrate best practices in source curation and serve as ready-made educational supplements.
4. Usage analytics (Plus feature, requires 4+ shared users and recent activity) track users per day and queries per day over seven days, providing aggregated engagement metrics without revealing individual user behaviour; combine quantitative analytics with qualitative feedback for comprehensive assessment.
5. Effective collaboration workflows vary by audience: educators use public sharing for course materials with analytics monitoring, researchers combine Editor access for literature reviews with public dissemination for impact, and students leverage Viewer sharing for study groups to prevent accidental modifications whilst maintaining interactive engagement.

What's Next: Chapter 10 shifts from collaboration mechanics to practical application, exploring how teachers can leverage NotebookLM's full feature set, from sharing to customization to Studio tools; to transform classroom instruction, student engagement, and assessment design.

PART VII: PRACTICAL APPLICATIONS

Chapter 10: NotebookLM for Teachers

🎯 LEARNING OBJECTIVES

By the end of this chapter, you will be able to:

1. Design customized lecture plans and course materials using NotebookLM's advanced prompting capabilities
2. Create differentiated learning resources that meet diverse student needs across experience and ability levels
3. Generate assessments, rubrics, and formative evaluation tools aligned with learning outcomes
4. Produce student communication materials and collaborative planning resources efficiently
5. Integrate NotebookLM with learning management systems and educational platforms for seamless workflow

10.1 Why NotebookLM Transforms Teaching Practice

University teaching in 2025 demands more than ever before. You're expected to differentiate instruction for diverse learners, align materials with challenging learning outcomes, provide timely feedback, communicate regularly with students, collaborate with colleagues, and stay current with pedagogical research; all whilst managing research obligations, administrative duties, and the complexities of supporting large cohorts. NotebookLM offers a fundamentally different approach to these challenges: rather than generic AI that searches the entire internet, it becomes *your personal teaching assistant* grounded *only* in the materials you provide.

What makes NotebookLM particularly powerful for university educators is its ability to work with **your specific course context**. Upload your module learning outcomes, textbook chapters, research papers, lecture slides, or previous course materials, and NotebookLM generates resources *directly aligned with your teaching context*. This isn't about replacing instructor expertise; it's about amplifying it. You remain the pedagogical decision-maker whilst NotebookLM handles the time-consuming work of synthesizing materials, creating multiple versions for different student backgrounds, and generating supplementary resources.

Since August 2025, NotebookLM has been available to **all education users of all ages** when enabled by institutional administrators. More significantly, the **September 2025 learning management system integration** transformed how instructors can deploy NotebookLM: you can now create notebooks directly within platforms like Google Classroom, Canvas, and Schoology, and assign them to students as interactive study guides. This chapter focuses on *practical teaching workflows*; not just what NotebookLM *can* do, but how to integrate it into your actual teaching practice to save time and enhance learning.

NOTE

This chapter assumes you're familiar with NotebookLM's core features (sources, chat, Studio panel) covered in Chapters 3–8. We focus here on **instructor-specific applications** and workflows. For detailed information on custom instructions, refer to Chapter 6; for learning tools like flashcards and quizzes, see Chapter 8.

10.2 Course Planning and Learning Outcome Alignment

10.2.1 Building a Course-Aligned Notebook

Effective use of NotebookLM for course planning begins with creating a well-structured notebook containing your core course materials. Rather than starting from scratch each time, build a **master notebook for each module or course unit** you teach. This becomes your course hub; a single location where NotebookLM can access everything it needs to generate aligned resources.

Essential sources to include:

- **Module or course learning outcomes** (approved syllabus, programme specifications)
- **Core textbook chapters or academic readings** (upload as PDFs or paste text)
- **Previous lecture slides and course notes**
- **Past assessments and marking rubrics**
- **Key research papers or technical documentation** (foundational materials for the topic)

10.2.2 Custom Instructions for Lecture and Seminar Generation

The **real power** lies in using custom instructions (see Chapter 6) to ensure NotebookLM generates materials that match *your teaching style and students' backgrounds*. The default 'create a lecture plan' prompt produces generic results. Custom instructions transform this into something genuinely useful.

Example: Machine Learning Module Custom Instruction

```
You are supporting an undergraduate Machine Learning module. When
generating lecture materials:  STRUCTURE: Each 2-hour session
includes (1) Motivation and context (10 minutes), (2) Theoretical
foundation with worked examples (40 minutes), (3) Interactive coding
demonstration (30 minutes), (4) Group problem-solving activity (30
minutes), (5) Summary and preview (10 minutes).  DIFFERENTIATION:
Students have varying programming backgrounds. Provide scaffolded
Python code examples with detailed comments for less experienced
students, and challenge problems for advanced students.  ASSESSMENT:
Include conceptual check questions throughout and a mini-problem set
for self-study. Questions should test both theoretical understanding
and practical implementation.  RESOURCES: Specify required Python
libraries (scikit-learn, NumPy, pandas, matplotlib). Include links
to documentation and relevant research papers.  ALIGNMENT: Explicitly
```

reference which module learning outcomes are being addressed and how this connects to prior and future topics.

With this custom instruction in place, your chat prompt becomes simple:

```
Create a complete lecture plan for introducing decision trees and
random forests. This is the third session in our supervised learning
unit.
```

NotebookLM will generate a lecture plan following your specified structure, incorporating differentiation strategies, and aligned with the learning outcomes you've uploaded; all because you invested time in creating comprehensive custom instructions *once*.

TIP

Save your custom instructions in a separate document. You can reuse and adapt them across different modules and courses. Create variations for different session types (e.g., 'Theory Lecture', 'Lab Session', 'Tutorial', 'Revision Session') to cover the range of teaching activities in your courses.

10.2.3 Iterative Refinement: From Draft to Classroom-Ready

NotebookLM's first output is rarely perfect; and that's fine. The key is **iterative refinement**. Review the generated lecture plan and use follow-up prompts to adjust specific elements:

- 'Make the coding demonstration more interactive; students should be coding along, not just watching.'
- 'The check questions are too basic. Create questions that require students to compare decision trees with previously covered algorithms.'
- 'Add discussion prompts about real-world applications and ethical considerations of automated decision-making.'
- 'Expand the challenge problem; advanced students will need something that requires implementing ensemble methods from scratch.'

This approach acknowledges a crucial truth: **AI can't replace your professional judgment** about what will work in your specific course with your specific students. But it *can* dramatically reduce the time required to get from 'blank page' to 'workable draft'.

10.3 Creating Differentiated Materials

10.3.1 The Differentiation Challenge in Higher Education

University courses attract students with vastly different backgrounds. In a data science module, some students arrive with strong programming skills and statistical

knowledge; others are transitioning from non-technical disciplines. Creating multiple versions of the same material manually is *extraordinarily time-consuming*; which is why it often doesn't happen as frequently as we'd like. NotebookLM excels at generating differentiated versions of content *quickly*, allowing you to provide truly personalized learning materials.

10.3.2 Technical Complexity Differentiation

Scenario: You're teaching about neural networks using a research paper written for ML practitioners, but some students lack the mathematical background whilst others want deeper technical detail.

Upload your research paper as a source, then use these prompts:

Version	Prompt
Simplified (minimal maths background)	'Create a conceptual summary of neural networks that explains the key ideas using intuitive analogies rather than equations. Focus on what they do and why they're useful. Maximum 3 equations, each with clear explanation in plain language.'
Standard (undergraduate level)	'Summarises the architecture and training process of neural networks. Include mathematical notation for forward propagation and backpropagation. Explain activation functions, loss functions, and optimisation algorithms. 500-600 words.'
Advanced (strong technical background)	'Create an advanced summary that includes detailed mathematical derivations of backpropagation, discusses computational complexity considerations, and compares different optimisation approaches (SGD, Adam, RMSprop). Pose three research-level questions about neural network design choices.'

Result: In 5 minutes, you have three versions of the same content covering the spectrum of student backgrounds in your course. Each student receives material that's accessible but appropriately challenging.

10.3.3 Activity and Exercise Differentiation

Beyond content complexity, NotebookLM can generate differentiated exercises.

Consider this prompt:

```
Create three versions of a programming exercise on implementing
decision trees:  Version A (Scaffolded): Provide starter code with
detailed TODO comments, helper functions already implemented, and
step-by-step guidance. Focus on understanding the algorithm.  Version
B (Standard): Provide function signatures and docstrings. Students
implement the core algorithm with minimal guidance.  Version C
(Challenge): Minimal starter code. Requires students to implement
decision trees with advanced features (pruning, handling missing
values) and compare performance against scikit-learn's
implementation.
```

TIP

Frame differentiated materials around learning goals, not difficulty. Label versions as 'Conceptual Focus', 'Implementation Focus', and 'Research Extension' rather than 'Easy', 'Medium', 'Hard'. This respects students' autonomy in choosing the level that matches their learning goals.

10.3.4 Multimodal Differentiation

Different students access content in different ways. NotebookLM's Studio panel features (Audio Overviews, Video Overviews, Mind Maps, Infographics; see Chapters 6–7) support **multimodal differentiation**. For a complex algorithm:

- **Audio Overview** for students who prefer auditory learning or want to review whilst commuting
- **Video Overview** for visual learners who benefit from seeing diagrams and animations
- **Mind Map** for students who need to see how components connect
- **Infographic** for students who benefit from visually structured summaries that combine key concepts, data, and relationships in a single-page format

All generated from the same sources, allowing students to choose their preferred format or use multiple formats for deeper understanding.

10.3.5 Using the Infographic Feature for Teaching

NotebookLM's Infographic feature, available in the Studio panel, automatically generates a visually structured, single-page summary of your source materials. Unlike the Audio Overview (which produces a podcast-style discussion) or the Mind Map (which shows hierarchical relationships), the Infographic presents key concepts, statistics, definitions, and relationships in a graphical layout designed for quick comprehension and reference.

For university educators, Infographics are particularly useful in the following scenarios:

- **Lecture warm-ups and wrap-ups:** Share an Infographic at the start of a session to activate prior knowledge, or at the end to consolidate the key points covered

- **Revision aids:** Generate topic Infographics from your lecture notes or readings and share them with students as concise revision resources before exams or assessments
- **Summarizing dense academic readings:** Upload a complex research paper or technical document and generate an Infographic to give students an accessible entry point before they engage with the full text
- **Module overviews:** Create a high-level Infographic of your entire module's learning outcomes and key themes to share at the start of term, helping students see the "big picture" before diving into individual topics
- **Supporting diverse learners:** Students with dyslexia or those who are not native English speakers often find visual formats significantly easier to process than dense written text; Infographics offer an equitable alternative entry point to the same content

To generate an Infographic, open the Studio panel in your notebook and select **Infographic** from the available output types. NotebookLM will analyze all active sources in the notebook and produce a downloadable visual summary. You can then download the Infographic as an image file and embed it in slides, share it via your LMS, or print it for use in class.

Customizing Infographic Output with Prompts

Unlike the Audio Overview, which currently offers limited post-generation customization, the Infographic can be steered using the prompt field that appears before generation. This allows you to specify focus areas, adjust the intended audience, emphasize particular concepts, or request a specific structural approach. Think of it as briefing a graphic designer before they begin work: the more precise your instructions, the more targeted the result.

Example prompts and their intended outcomes:

- *"Create an infographic summarizing the key differences between supervised and unsupervised machine learning, aimed at first-year undergraduate students with no prior programming experience. Use simple language and concrete everyday examples."* - This steers NotebookLM to avoid jargon, prioritize conceptual clarity, and anchor explanations in relatable contexts.
- *"Focus only on the ethical implications of algorithmic bias covered in the uploaded readings. Structure the infographic as a cause-and-effect diagram highlighting real-world consequences."* - This narrows the scope to a specific sub-topic and requests a particular visual structure, useful when sources cover a broader range of material than you want to feature.
- *"Generate a revision infographic covering all five module learning outcomes. For each outcome, include the key term, a one-sentence definition, and one example from the lecture notes."* - This provides an explicit content template, ensuring the Infographic maps directly onto your module's assessment framework.
- *"Create an advanced-level infographic for postgraduate students, focusing on the methodological limitations and open research questions raised in the uploaded papers. Assume familiarity with the foundational theory."* - This raises the intellectual level and shifts focus to critical analysis, appropriate for research-led teaching contexts.

If the first generated Infographic does not fully meet your needs, you can regenerate it with a refined prompt. For instance, if the initial output is too broad, add a constraint

such as “*limit to no more than six key concepts*” or “*prioritize practical applications over theory*”. This iterative approach mirrors the refinement workflow recommended throughout this chapter and ensures the final output is genuinely classroom-ready.

As with all Studio outputs, the Infographic is grounded exclusively in your uploaded sources, so you can trust that it reflects your course content rather than generic information from the internet. Always review the generated Infographic before sharing with students to confirm accuracy and completeness, particularly for technical or rapidly evolving subject areas.

10.4 Assessment Design and Formative Evaluation

10.4.1 Generating Aligned Assessments

Creating high-quality assessments is time-intensive: questions must be clearly worded, appropriately challenging, aligned with learning outcomes, and ideally include marking schemes. NotebookLM can generate assessment materials that meet these criteria when you provide **clear specifications**.

Example prompt for a module assessment:

```
Create a 100-mark examination for Data Structures and Algorithms.
Requirements:
• Section A: 10 multiple choice questions (5 marks each) covering fundamental concepts
• Section B: 2 algorithm analysis questions (15 marks each) requiring Big-O analysis and justification
• Section C: 1 implementation question (20 marks) requiring pseudocode or Python for a specified data structure
• Include detailed marking scheme with partial credit allocation
• Ensure questions address all module learning outcomes from the uploaded syllabus
• Questions should test understanding, not just memorization
```

The assessment generated will be grounded in your uploaded learning outcomes and teaching materials, ensuring content validity.

10.4.2 Rubrics and Marking Criteria

Rubrics clarify expectations but take significant time to create. Use NotebookLM to draft rubrics, then refine based on your professional judgment:

```
Create a marking rubric for assessing students' machine learning project reports. Use UK degree classifications (First Class: 70-100, Upper Second: 60-69, Lower Second: 50-59, Third: 40-49, Fail: 0-39) and assess these criteria:
1. Problem formulation and research questions (15 marks)
2. Data preprocessing and exploratory analysis (20 marks)
3. Model selection and justification (20 marks)
4. Implementation quality and reproducibility (20 marks)
5. Results analysis and critical evaluation (15 marks)
6. Written communication and code documentation (10 marks)
Provide specific descriptors for each classification band that would be clear to both markers and students.
```

NOTE

Always review AI-generated assessments for potential issues: ambiguous wording, unintended ambiguity in technical questions, or potential for multiple valid solutions. NotebookLM provides a **strong first draft**, but your disciplinary expertise ensures the assessment is fair, valid, and appropriate for your students.

10.4.3 Quick Formative Checks: Problem Sets and Concept Questions

Formative assessment is crucial for responsive teaching, but creating effective check questions regularly is challenging. NotebookLM excels at generating **quick checks for understanding**. After a lecture on any topic, prompt:

```
Create a short problem set with 5 questions to check whether students understand today's lecture on graph traversal algorithms. Include one conceptual question, two application questions requiring trace execution, one comparison question, and one question that addresses a common misconception about DFS vs BFS. Provide solutions.
```

This takes 30 seconds to generate and provides targeted information about student understanding to inform your next session.

10.5 Student Communication and Engagement

10.5.1 Module Updates and Topic Overviews

Keeping students informed about course progression and expectations requires time many instructors don't have. NotebookLM can generate student-friendly module overviews that explain *what* they'll be learning and *why* it matters.

Create a notebook containing your course plan and learning outcomes, then prompt:

```
Write a student-facing module overview (400 words) explaining our upcoming unit on distributed systems. Include: • What students will learn (key concepts and practical skills) • Why this content is important for their future careers • How this connects to previous topics (networking, concurrency) • Recommended preparation and self-study resources • Key terminology they'll encounter • Use accessible language and an encouraging tone. Assume students have completed the prerequisites but may need some concepts refreshed.
```

10.5.2 Multilingual Communication

NotebookLM's multilingual capabilities (supporting 80+ languages for content generation) enable truly inclusive student communication. Once you've drafted your module overview in English, you can request translations for international students:

Translate this module overview into Mandarin Chinese, maintaining the encouraging tone and ensuring technical terms are accurately translated with English equivalents in brackets.

This dramatically reduces barriers for international students whose first language isn't English.

⚠ WARNING

Whilst NotebookLM supports translation, **always have translations reviewed by a fluent speaker if possible**. Technical terminology may not translate perfectly, and nuances can be lost. This is particularly important for formal communications about assessment requirements or academic integrity.

10.5.3 Individual Feedback and Progress Comments

Writing individualized feedback is one of teaching's most time-consuming tasks. Whilst NotebookLM cannot replace the personal knowledge you have of each student, it *can* help generate feedback frameworks that you then personalize.

Create a notebook with assignment rubrics and common issues, then:

```
Generate three example feedback templates (150 words each) for students at different performance levels in their data structures implementation assignment: 1. Below expectations—implementation has correctness issues and lacks proper testing 2. Meets expectations—correct implementation with good code quality 3. Exceeds expectations—elegant implementation with advanced features and comprehensive testing. 4. Each feedback should acknowledge strengths and provide specific, actionable recommendations for improvement. Professional but encouraging tone.
```

These provide templates you can adapt with specific examples from each student's submission, significantly reducing writing time whilst maintaining personalization.

10.6 Professional Development and Course Team Collaboration

10.6.1 Personal Professional Learning

Academics are expected to keep current with both disciplinary advances and pedagogical developments, but time for professional reading is scarce. NotebookLM acts as your **personal research assistant**, helping you digest professional literature quickly.

Upload research papers, conference proceedings, or pedagogical articles, then:

- Generate summaries of key findings and implications for teaching

- Ask questions about specific techniques or approaches mentioned in the literature
- Request practical applications of research findings to your courses
- Create action plans for implementing new pedagogical approaches

Example scenario: You've been given three papers on active learning in computer science education but have limited time:

summarize the key principles of active learning from these papers. Then suggest 5 specific, practical strategies I could use in my algorithm's lectures (200 students, 2-hour sessions), with examples relevant to teaching dynamic programming.

10.6.2 Course Team and Departmental Collaboration

NotebookLM's sharing features (see Chapter 9) enable collaborative planning within course teams. A computer science department might maintain shared notebooks for each core module containing:

- Programme specifications and module learning outcomes
- Core teaching resources (textbook chapters, research papers, video lectures)
- Previous lecture materials and assessments from multiple instructors
- Lab exercise instructions and datasets

Any instructor teaching the module can access this shared knowledge base and generate materials aligned with departmental standards. This is particularly valuable for **new lecturers** or **instructors teaching outside their primary specialization**, who can build on collective expertise rather than starting from scratch.

TIP

Establish department protocols for shared notebooks: Who maintains them? How are they updated? What sources are included? Who has edit vs view access? Clear protocols ensure shared resources remain high-quality and aligned with current programme requirements.

10.6.3 Peer Observation and Teaching Development

Academic communities of practice often engage in peer observation and collaborative teaching development. NotebookLM supports this process:

1. **Planning phase:** Upload learning outcomes and student feedback data; collaboratively generate session ideas
2. **Teaching phase:** One instructor delivers the session whilst colleagues observe
3. **Reflection phase:** Upload observation notes and student work samples to the notebook; use NotebookLM to identify patterns and generate revision suggestions
4. **Refinement phase:** Ask NotebookLM to revise materials based on feedback

10.7 Learning Management System Integration

10.7.1 Creating and Assigning Notebooks in Your LMS

The **September 2025 LMS integration** fundamentally changed the instructor workflow. Previously, you created notebooks separately and shared links manually. Now, you can create and assign notebooks directly within your institution's learning management system.

For Google Classroom:

5. **Navigate to Google Classroom → Coursework**
6. **Click 'Create' → 'Assignment'**
7. **Select 'NotebookLM' from the assignment options**
8. **Choose course materials to include as sources** (documents, slides, readings already in Classroom)
9. **Add custom instructions** if desired (e.g., 'Focus on algorithmic complexity and provide code examples')
10. **Assign to students**

Students receive an interactive notebook grounded in the specific materials you've selected. They can ask questions, generate study aids, and explore the content at their own pace.

10.7.2 Assigning Public Notebooks

As of **December 2025**, instructors can also assign **public notebooks** created by educational organizations. For example, NotebookLM has partnered with OpenStax to create pre-built notebooks on various academic topics. These high-quality, curated notebooks can be assigned directly to students without you needing to create them from scratch.

This is particularly useful for:

- Supplementary materials on foundational topics students should review
- Extension resources for advanced students wanting to explore beyond the syllabus
- Revision materials covering standardized content

10.7.3 Integration with Canvas and PowerSchool Schoology

For institutions not using Google Classroom, NotebookLM also integrates with **Canvas by Instructure** and **PowerSchool Schoology Learning** via the Gemini LTI (Learning Tools Interoperability) integration. The workflow is similar: create notebooks from course materials and assign them to students within your existing LMS.

NOTE

Administrator setup required: For students to access NotebookLM through your institution's LMS, your IT administrator must enable NotebookLM in the system

settings. If you don't see NotebookLM as an assignment option, contact your institutional IT support or LMS administrator.

10.8 Time-Saving Workflows: Strategic Implementation

10.8.1 The 'Master Notebook' Strategy

Rather than creating notebooks reactively ('I need a problem set for tomorrow'), adopt a **proactive, strategic approach**. At the beginning of each term or teaching block:

11. **Create a master notebook** containing all essential sources for the module
12. **Set up custom instructions** for your typical lecture/assessment/differentiation needs
13. **Pre-generate core resources:** module overview, key terminology lists, simplified reading versions
14. **Use the notebook on-demand** throughout the term for session-specific materials

This front-loaded preparation (approximately 60-90 minutes at the start of a module) saves hours during the teaching weeks.

10.8.2 The Differentiation Batch Process

When you know you'll need differentiated versions of materials throughout a module, generate them in one session rather than piecemeal:

- Upload all core readings for the module
- Request simplified, standard, and advanced versions of each
- Download or save all versions to your course repository
- Deploy as needed throughout the term

This batch processing is far more time-efficient than creating differentiated materials the night before each session.

10.8.3 Reusable Prompt Library

Maintain a document of your most effective prompts for recurring tasks. Rather than reinventing prompts each time, build a library organised by category:

- **Lecture planning prompts** (theory sessions, lab sessions, revision sessions)
- **Differentiation prompts** (content simplification, exercise scaffolding, advanced extensions)
- **Assessment prompts** (problem sets, exam questions, rubrics)
- **Student communication prompts** (module overviews, feedback templates)

Copy-paste from your library rather than writing new prompts from scratch each time. Refine prompts based on results and share effective prompts with colleagues.

10.9 Ethical Considerations and Professional Responsibility

10.9.1 Student Privacy and Data Protection

NotebookLM is covered under **Google Workspace for Education Terms of Service** with enterprise-grade data protection. Your data is not reviewed by humans or used to train AI models. However, instructors must still exercise caution:

- **Never upload documents containing sensitive student information** (medical records, personal circumstances, disciplinary issues)
- **Anonymize student work samples** before uploading for analysis
- **Be mindful when generating feedback**; avoid uploading entire class lists with detailed personal information

10.9.2 Academic Integrity and Transparent Use

If students use NotebookLM for learning (either through assigned notebooks or independent use), teach them about academic integrity:

- NotebookLM is a study tool, not a substitute for learning
- Generated summaries and explanations should be understood and verified, not copied verbatim
- When using AI-generated content in assignments, students should acknowledge it (following institutional AI use policies)

Model transparent AI use yourself. If you've used NotebookLM to create teaching materials, there's no need to hide this; it demonstrates *effective and ethical use of AI tools*.

10.9.3 Quality Assurance and Professional Judgment

NotebookLM is **not infallible**. AI can produce:

- **Inaccurate content** (especially if sources contain errors or are outdated)
- **Inappropriate code examples** (inefficient implementations, security vulnerabilities)
- **Misleading explanations** (oversimplifications that create misconceptions)

Your disciplinary expertise is essential. Always review AI-generated materials before using them with students. Consider:

- Is this content technically accurate?
- Does it align with learning outcomes and industry best practices?
- Will students at this level understand this explanation?
- Are there any potential issues (buggy code, deprecated syntax, security concerns)?

WARNING

Never use AI-generated content as-is without review. Instructors have encountered AI producing plausible-sounding but factually incorrect algorithms, code

with subtle bugs, or explanations that reinforce common misconceptions. You are the quality control; NotebookLM is the assistant, not the decision-maker.

10.9.4 Equity and Access

NotebookLM is free for education users, which improves equity compared to paid AI tools. However, access still requires:

- Internet connectivity
- A device (computer, tablet, smartphone)
- A Google account
- Institutional administrator enabling the service

Not all students have equal access to technology outside the university. When assigning NotebookLM-based activities, ensure students can complete them using campus facilities or provide alternative options for students with limited technology access.

KEY TAKEAWAYS

1. **Strategic use of custom instructions** transforms NotebookLM from a generic tool into your personalized teaching assistant aligned with your pedagogical approach and students' backgrounds.
2. **Differentiation at scale** becomes feasible: generate multiple versions of content (technical complexity, exercise scaffolding, multimodal formats) efficiently, providing truly personalized learning materials.
3. **Time savings are maximized** through strategic workflows: master notebooks for modules, batch processing of differentiated materials, reusable prompt libraries, and LMS integration for seamless assignment.
4. **Student communication and professional development** benefit from NotebookLM's ability to synthesize complex content into accessible formats, supporting diverse student populations and helping instructors engage with pedagogical research.
5. **Professional responsibility remains paramount:** NotebookLM is a powerful assistant, but instructors must review all AI-generated content for technical accuracy, pedagogical appropriateness, and alignment with student needs before using it in teaching.

***What's Next:** Chapter 11 explores NotebookLM for Researchers; the most detailed chapter in this guide. We examine how researchers can leverage NotebookLM's capabilities for literature reviews, qualitative data analysis, manuscript preparation, grant writing, and maintaining comprehensive research notebooks across complex, long-term projects. This chapter provides the deepest treatment of advanced techniques applicable to professional academic research contexts.*

PART VII: PRACTICAL APPLICATIONS

Chapter 11: NotebookLM for Researchers

Research is fundamentally about navigating vast bodies of existing knowledge to generate new understanding. Whether you are conducting a systematic literature review for a doctoral thesis, mapping the theoretical landscape of an emerging field, or synthesizing findings across dozens of studies for a grant proposal, the challenge remains the same: how do you efficiently extract, organize, and synthesize information from large collections of academic sources?

NotebookLM transforms this process by acting as a source-grounded research partner that has effectively read every document in your notebook and can answer nuanced questions, identify patterns, flag contradictions, and generate structured syntheses; all while pointing you back to the exact passages in your original sources. Unlike general-purpose AI tools that draw from broad training data (and risk hallucinating citations), NotebookLM constrains its responses exclusively to the materials you provide. This architectural decision makes it uniquely suited to academic research, where verifiability is non-negotiable.

LEARNING OBJECTIVES

By the end of this chapter, you will be able to:

1. Design a research notebook with a strategic source curation approach that maximizes NotebookLM's analytical capabilities across up to 50 (free) or 300 (Plus) sources.
2. Configure custom personas and goals using the 10,000-character prompt field to create specialized research assistants for literature analysis.
3. Conduct systematic cross-source analysis to identify patterns, contradictions, methodological trends, and gaps across a body of literature.
4. Generate thematic synthesis reports and mind maps that serve as foundations for literature review chapters and research proposals.
5. Leverage Deep Research to discover and import relevant web-based sources directly into your notebook, building a comprehensive knowledge base without leaving the platform.
6. Craft prompts for rigorous methodological critique that identify strengths, limitations, and validity threats across studies in your notebook.
7. Use NotebookLM to compare theoretical frameworks, mapping how different lenses have been applied to the same research domain.
8. Extract trends, key constructs, and taxonomies from a corpus of literature using structured prompting strategies.
9. Apply the principles of expert-level prompting to transform generic queries into discipline-specific analytical instruments, with concrete before-and-after examples.

10. Generate annotated bibliographies, briefing documents, and structured literature summaries using custom prompts tailored to academic conventions.
11. Configure custom personas, research advisor, peer reviewer, devil's advocate, to obtain different types of feedback on your analyses and draft manuscripts.
12. Design an integrated research workflow that combines NotebookLM with Zotero, Litmaps, Consensus, Elicit, and other complementary tools.
13. Implement a systematic verification workflow that catches common errors in NotebookLM's citations, source attributions, and synthesized claims before they enter your manuscripts.
14. Navigate publisher AI policies from major academic publishers (Elsevier, Springer Nature, Wiley, SAGE) and understand where disclosure is required, where it is not, and what remains ambiguous.
15. Distinguish between legitimate AI assistance and academic integrity violations, applying clear principles to your own research context.
16. Create a personal AI disclosure statement that satisfies current publisher requirements and protects your scholarly reputation.

This chapter is structured across four interconnected areas: establishing a research notebook and conducting systematic cross-source analysis; applying expert-level prompting for methodological and theoretical work; supporting the academic writing and publication pipeline; and practicing responsible, ethical AI-assisted research.

11.1 Setting Up a Research Notebook: Source Curation and Organization Strategy

The quality of NotebookLM's analysis is directly proportional to the quality and organization of the sources you provide. A well-curated notebook is the foundation of every successful research workflow. This section covers the strategic decisions you need to make before uploading a single document.

11.1.1 The One-Notebook-One-Project Principle

NotebookLM works best when each notebook focuses on a single research project or clearly defined topic. A notebook titled "Literature Review: Federated Learning in Healthcare 2020–2025" will produce far sharper, more relevant responses than one called "General AI Research." Narrow scope reduces noise and ensures that every query returns focused results.

For larger research programmes, consider creating a constellation of related notebooks:

- **Notebook A:** Theoretical Frameworks - foundational papers on your theoretical lens
- **Notebook B:** Empirical Studies - primary research papers with quantitative or qualitative findings

- **Notebook C:** Methodology - papers on research design, instruments, and analysis techniques
- **Notebook D:** Synthesis and Writing - your own notes, draft sections, and synthesis outputs

11.1.2 Source Types and What Works Best

NotebookLM accepts a range of source formats, each with different strengths for research purposes. Understanding these helps you build the most effective notebook.

Source Type	Research Strengths	Practical Tips
PDFs (journal articles, book chapters)	Full-text analysis with precise passage citations; ideal for systematic reviews	Upload clean PDFs; avoid scanned images without OCR. Remove cover pages to save word count
Google Docs	Editable and syncable; excellent for your own research notes and draft manuscripts	Use Google Docs for your evolving research memos; re-sync after updates
Web URLs	Preprints, working papers, institutional reports, blog-style analyses	Useful for grey literature; verify credibility before including
YouTube videos	Conference presentations, lectures, research seminars with full transcript analysis	Excellent for capturing arguments made in keynote lectures or panel discussions
Google Sheets	Structured data, coding frameworks, comparison matrices	Upload your extraction sheets to let NotebookLM cross-reference structured and unstructured data
Audio files (MP3, WAV)	Interview recordings, podcast episodes featuring domain experts	Upload raw interview data for thematic analysis alongside published literature
.docx files	Draft manuscripts, institutional reports, policy documents	Useful for grey literature and your own draft sections for AI-assisted revision
Images	Diagrams, framework figures, data visualizations from papers	Upload key figures separately when you want NotebookLM to analyse visual models in detail

11.1.3 Source Limits and How to Work Within Them

The free tier allows up to 50 sources per notebook, each containing up to 500,000 words (approximately 700 pages). The Plus tier expands this to 300 sources per notebook. For most literature reviews involving 20–40 papers, the free tier is more than sufficient. However, for large-scale systematic reviews, you will need to make strategic decisions about source allocation.

 **TIP**

If you approach the 50-source limit, consolidate related content strategically. For example, combine short supplementary materials into a single Google Doc, or create summary notes from several minor papers and upload the synthesis as one source. This preserves your source slots for high-priority full-text papers while maintaining access to peripheral material.

11.1.4 Configuring Your Research Persona

Before querying your sources, configure the notebook's custom prompt to transform NotebookLM from a general assistant into a specialized research partner. The 10,000-character customization field (expanded from 500 characters in December 2025) is where the real power lies. Access it via the gear icon in the chat interface.

SAMPLE CUSTOM PROMPT: Literature Review Researcher

You are an expert academic research assistant specializing in [*your discipline*]. Your role is to help me conduct a rigorous, systematic literature review.

BEHAVIOUR RULES: Always cite specific sources using author names and direct quotes when making claims | When I ask about patterns or trends, compare across ALL relevant sources | Flag any contradictions between sources explicitly | Distinguish between empirical findings and theoretical arguments | Use academic language appropriate for a peer-reviewed journal | When uncertain, say so rather than speculating | Structure responses using clear academic conventions.

OUTPUT FORMAT: Use numbered references when listing sources | Present findings thematically rather than paper-by-paper | Include specific page numbers or section references where possible | Highlight methodological strengths and limitations of cited studies.

DOMAIN CONTEXT: My research focuses on [*your specific topic*] | I am writing a [thesis chapter / journal article / grant proposal] | Key theoretical frameworks I am working with include [framework names] | I am particularly interested in [specific aspects, e.g., methodological gaps in qualitative studies published after 2020].

 **WARNING**

The custom prompt shapes chat responses only. It does not affect Studio outputs such as Audio Overviews, mind maps, or reports; those have their own separate custom instruction fields. Configure each tool individually for consistent results across your workflow.

11.1.5 Using Deep Research to Bootstrap Your Notebook

Introduced in November 2025, Deep Research transforms NotebookLM from a tool that only analyses documents you provide into one that actively discovers new sources. In the Sources panel, select "Web" as a source type and enter a research query. NotebookLM offers two modes:

- **Fast Research:** Rapidly scans for relevant sources and presents them for review. Best for targeted searches when you know roughly what you need.
- **Deep Research:** Performs an extended, agent-driven analysis that can gather up to 50 sources, evaluate their relevance, produce a synthesis report, and import both the report and sources directly into your notebook. This runs in the background, allowing you to continue working.

For researchers, Deep Research is particularly powerful for the initial scoping phase of a literature review; use it to map the landscape of a topic before uploading your own curated papers. A prompt like "Recent systematic reviews on machine learning applications in drug discovery, published 2022–2025" will yield far more useful results than a vague query like "AI in medicine."

NOTE

Deep Research discovers web-based sources, which may include preprints, blog posts, and news articles alongside peer-reviewed publications. Always verify the quality and provenance of imported sources before treating them as part of your formal literature base. Free-tier users are limited to 10 Deep Research reports per month.

11.2 Systematic Cross-Source Analysis: Patterns, Contradictions, and Gaps

Once your notebook is populated with curated sources, the real analytical work begins. NotebookLM's ability to reason across multiple documents simultaneously is what sets it apart from simply reading papers one at a time. This section provides a structured approach to extracting deep insights from your source collection.

11.2.1 Selecting Sources for Focused Analysis

Not every query should target every source. NotebookLM allows you to select specific sources in the Sources panel before asking a question. This scoping mechanism is essential for systematic analysis:

- **Select all sources** when asking broad landscape questions ("What are the major theoretical approaches across these studies?")
- **Select a subset** when comparing specific papers ("How do Smith (2022) and Chen (2023) differ in their operationalization of digital literacy?")
- **Select a single source** for deep extraction from one document ("Summarize the methodology section in detail, including sampling strategy, instruments, and analysis approach")

11.2.2 A Framework for Systematic Cross-Source Analysis

The following framework provides a structured approach to interrogating your sources. Each phase builds on the previous one, moving from surface-level mapping to deep synthesis.

Phase 1: Landscape Mapping

Begin by understanding the broad contours of your source collection. Use these prompts with all sources selected:

PROMPTS: Landscape Mapping

"Across all sources, identify the major themes and topics addressed. Group them into 4–6 thematic categories and list which sources fall under each category."

"Create a chronological overview showing how research on [topic] has evolved across these sources. Identify key turning points or paradigm shifts."

"List all research methodologies used across these sources. For each methodology, indicate which studies used it and briefly note the sample size and context."

Phase 2: Pattern Identification

Once you have the landscape, dig into patterns and convergences:

PROMPTS: Pattern Identification

"What findings are consistent across multiple sources? Identify areas of consensus, citing at least three sources for each finding."

"Identify the dominant theoretical frameworks used in these studies. Which framework appears most frequently, and how has its application changed over time?"

"Extract all key variables, constructs, or concepts measured across these studies. Present them in a structured format showing: variable name, how it was operationalized, and which studies measured it."

Phase 3: Contradiction and Debate Analysis

Contradictions in the literature are where the most valuable research opportunities lie. NotebookLM is exceptionally good at surfacing these because it can compare specific claims across papers simultaneously:

PROMPTS: Contradiction Analysis

"Identify any contradictory findings between these sources. For each contradiction, explain what each source claims, the methodology used, and possible explanations for the disagreement."

"Are there ongoing debates or unresolved questions in this body of literature? Summarize each debate, the positions taken by different authors, and the evidence supporting each position."

Phase 4: Gap Identification

The ultimate goal of a literature review is often to identify what remains unknown or understudied. Use these prompts to surface gaps:

PROMPTS: Gap Identification

"You are an expert research mentor specializing in [discipline]. Based on these sources, identify at least three categories of research gaps: (a) methodological gaps; approaches or

methods that have not been tried, (b) contextual gaps; populations, settings, or regions underrepresented, and (c) theoretical gaps; frameworks that could be applied but have not been. For each gap, provide: (1) a one-sentence description, (2) an example paper that highlights the gap, and (3) a suggested research question."

"What research questions do these sources collectively leave unanswered? Suggest 3–5 specific, feasible research questions that would address the most significant gaps."

11.2.3 Verifying AI-Generated Cross-Source Claims

Every response from NotebookLM includes inline citations that link directly to the relevant passage in your source documents. This is not optional verification; it is an essential part of the research workflow. Published research evaluating NotebookLM's literature review capabilities has found that while the tool produces coherent and well-structured syntheses, citation misattributions and page mismatches can occur. Always:

1. Click each citation number to view the source passage in context
2. Confirm that the cited passage actually supports the claim being made
3. Check for misattributions; where a claim is correctly stated but attributed to the wrong source
4. Note any findings that NotebookLM may have missed; no AI tool captures every nuance in a body of literature

WARNING

NotebookLM's citations point to passages in your uploaded documents, not to formal bibliographic references (e.g., APA or Harvard style). You must always construct proper academic citations manually when incorporating findings into your manuscripts. The tool accelerates analysis; it does not replace scholarly citation practices.

11.2.4 Practical Workflow: From 30 Papers to a Structured Analysis

Here is a concrete example of how a researcher might work through a systematic cross-source analysis reviewing 30 papers on AI adoption in higher education:

Step	Action	Time Estimate
1. Organize	Create notebook titled "AI Adoption in Higher Education 2020–2025." Upload 30 PDFs grouped by sub-topic (student perceptions, faculty adoption, institutional policy, learning outcomes).	15–20 min
2. Configure	Set custom prompt with your research persona (discipline, focus, output format preferences).	5–10 min
3. Map	Select all sources. Ask for thematic categorization, chronological overview, and methodology inventory.	10–15 min

4. Analyze	Select subsets by theme. Ask for consensus findings, contradictions, and variable mappings within each group.	20–30 min
5. Identify gaps	Select all sources. Request methodological, contextual, and theoretical gap analysis.	10–15 min
6. Verify	Click through all citations. Confirm attributions and note any missed findings.	30–45 min
7. Export	Copy key findings into a Google Doc uploaded as a source for ongoing synthesis work.	10 min

TIP

Save your best prompts and NotebookLM's responses by copying them into a Google Doc and uploading it back as a source. This creates a "memory layer" that allows you to reference and build on earlier analyses in subsequent queries; effectively turning your notebook into an evolving research knowledge base.

11.3 Generating Thematic Synthesis Reports and Mind Maps for Gap Identification

Beyond the chat interface, NotebookLM's Studio panel offers structured output formats that are particularly valuable for researchers. This section covers how to generate and customize synthesis reports and mind maps that can serve as the scaffolding for literature review chapters and research proposals.

11.3.1 Thematic Synthesis Reports

NotebookLM's Report feature in the Studio panel generates structured documents from your sources. The default output is a general summary, but with custom instructions, you can shape it into a publication-ready thematic synthesis. Navigate to the Studio panel, click "Report," and enter custom instructions before generating:

SAMPLE CUSTOM INSTRUCTION: Thematic Synthesis Report

Generate a thematic literature review report structured as follows:

- 1. OVERVIEW:** A 200-word executive summary of the state of research on this topic
- 2. THEMATIC ANALYSIS:** Organize findings into 4–6 major themes. For each theme: define the theme and its scope | summarize key findings with specific citations | note areas of consensus and debate | identify limitations in the existing evidence
- 3. METHODOLOGICAL LANDSCAPE:** Summarize the range of methods used, their strengths and weaknesses, and any methodological trends over time
- 4. RESEARCH GAPS:** List specific, actionable gaps that future studies could address
- 5. RECOMMENDED READINGS:** Identify the 5 most influential papers in this collection and explain why they are essential

Write in formal academic prose suitable for a journal article's literature review section. Cite sources by author name and year throughout.

The generated report can be saved to your notebook, shared, or used as a starting point for your own literature review writing. Remember that this is a first draft scaffold; it needs your expert judgment to refine arguments, verify citations, add nuance, and ensure it meets the standards of your target journal or institution.

11.3.2 Mind Maps for Research Gap Identification

Mind maps provide a visual representation of the relationships between concepts, themes, and sources in your notebook. For researchers, they serve two critical functions:

1. Structural visualization: Seeing how themes, authors, and concepts cluster together can reveal connections you might miss when reading linearly.
2. Gap identification: Areas of the map with few connections or missing nodes often indicate understudied areas; precisely the spaces where your own research can make its most significant contribution.

To generate a research-oriented mind map, navigate to the Studio panel, click "Mind Map,"

NOTE

Mind maps in NotebookLM are interactive; you can click on nodes to see which sources contributed to that branch. This makes them powerful navigation tools: spot a thin cluster on the map, click into it, and then use the chat to ask targeted questions about that underdeveloped area.

11.3.3 Combining Reports and Mind Maps for Comprehensive Analysis

The most effective approach uses reports and mind maps in tandem. Generate the mind map first to get a visual overview of your source landscape. Identify the thin branches and isolated nodes; these represent potential gaps. Then generate a thematic report that deliberately focuses on these underrepresented areas, using custom instructions like: "Focus especially on [*identified gap area*] and explain what the existing sources say (or fail to say) about this topic."

This iterative cycle; map, identify, interrogate, refine; mirrors the way experienced researchers actually work through a literature review, but accelerated by NotebookLM's ability to cross-reference dozens of papers simultaneously.

11.3.4 Exporting and Using Your Outputs

Research outputs from NotebookLM can be integrated into your broader workflow in several ways:

- **Save reports to your notebook** as additional sources, creating a layered knowledge base that includes both primary literature and your AI-assisted analyses
- **Copy report text into Google Docs** for further editing, citation formatting, and integration with your manuscript draft
- **Share mind maps and reports** with supervisors or collaborators for feedback on your analytical framework before you begin writing
- **Use Audio Overviews** to generate podcast-style discussions of your sources; valuable for absorbing material during commutes or identifying themes you may have overlooked in text-based analysis

TIP

Create an Audio Overview with custom instructions like "Discuss the major methodological debates in these papers and where the field might be heading." Listen during your commute or exercise session. Many researchers report that hearing their sources discussed conversationally helps them identify connections and framings they missed when reading alone.

11.4 Prompts for Methodological Critique, Comparison, and Analysis

Understanding the methodological landscape of your field is essential for positioning your own research. NotebookLM can extract and compare methodological details across dozens of papers simultaneously; something that would take days to do manually. The key is knowing what to ask and how to structure the request.

11.4.1 Extracting Methodological Details at Scale

The first step is to build a methodological inventory of your source collection. Rather than reading through each paper's methods section individually, ask NotebookLM to extract structured data across all sources at once:

PROMPT: Methodological Inventory

"For each empirical study in these sources, extract the following in a structured table format: (1) Author(s) and year, (2) Research design (e.g., experimental, quasi-experimental, survey, case study, ethnography), (3) Sample size and population, (4) Data collection instruments or methods, (5) Analysis technique(s), (6) Key limitations acknowledged by the authors. If a source is purely theoretical, note 'Theoretical/Conceptual' in the design column."

This single prompt produces a comparative matrix that would typically take hours of manual extraction. The table output becomes a working document you can reference throughout your literature review writing.

11.4.2 Critiquing Research Quality

Once you have the inventory, the next step is critical evaluation. NotebookLM can surface methodological weaknesses and recurring challenges that may not be obvious from reading papers individually:

PROMPT: Methodological Critique

"Analyze the methodological weaknesses and recurring challenges across these studies on [topic]. Extract 4–6 common issues (e.g., small sample sizes, weak controls, measurement biases, reproducibility concerns, limited generalizability). For each issue: (1) explain how it appears across multiple papers with specific citations, (2) explain why it matters for validity or generalizability, and (3) suggest what solutions or best practices could address it. Conclude with a synthesis: which weaknesses most seriously limit progress in this field?"

This type of analysis is invaluable for writing the "limitations of existing research" section of a literature review or for justifying why your own methodological approach addresses gaps in prior work.

11.4.3 Comparing Methodological Approaches

When your sources employ different methodologies to study the same phenomenon, NotebookLM can help you compare their relative strengths:

PROMPT: Methodology Comparison

"Compare the quantitative and qualitative approaches used in these studies on [topic]. For each approach, identify: (1) which studies used it, (2) what types of research questions it was suited to answer, (3) its main strengths in this context, (4) its main limitations. Then assess whether mixed-methods designs appear in any of the sources, and evaluate how effectively they integrate quantitative and qualitative components."

TIP

Use source selection strategically when comparing methodologies. Select only the quantitative papers, run an analysis, then select only the qualitative papers and repeat. Finally, select all sources and ask NotebookLM to synthesize across both sets. This layered approach often produces richer insights than a single all-sources query.

11.4.4 Qualitative Data Analysis with NotebookLM

Researchers working with qualitative data; interview transcripts, focus group recordings, field notes; can use NotebookLM as an analysis tool by uploading these materials directly. A layered approach works best:

Analysis Pass	Focus	Example Prompt
First pass	Broad thematic overview across all sources	"Identify the major themes across these interview transcripts. For each theme, provide: a definition, frequency across participants, and representative quotes."
Second pass	Deep dive into top themes with specific sources selected	"Focus on the theme of [X]. What nuances, sub-themes, and variations appear across participants? Where do perspectives converge and diverge?"
Third pass	Contradictions and outliers	"Identify participants whose experiences contradict the dominant themes. What alternative narratives emerge? What might explain these outlier perspectives?"
Fourth pass	Theoretical application lens	"Re-analyze these transcripts through the lens of [theory/framework]. What patterns become visible that were not apparent in the initial thematic analysis?"

NOTE

"NotebookLM won't do the deep analytical work for you, but it can help you get oriented in your data much faster." Use it to generate initial codes and themes, then validate and refine these using your discipline's established procedures (e.g., thematic analysis, grounded theory, framework analysis). Always maintain an audit trail of your analytical decisions.

11.5 Theoretical Framework Mapping and Trend Identification Across a Corpus

Theory is the backbone of academic research. Understanding which theoretical frameworks have been applied in your field, how they have evolved, where they converge, and where they compete, is essential for positioning your own study within a scholarly conversation. NotebookLM can map this landscape across your entire source collection.

11.5.1 Mapping Theoretical Frameworks

PROMPT: Theoretical Framework Inventory

"Identify all theoretical frameworks, models, and conceptual lenses referenced across these sources. For each framework, provide: (1) its name and originator(s), (2) a brief definition (2–3 sentences), (3) which sources apply it and in what context, (4) whether it is used as the primary lens, a supporting framework, or merely mentioned. Organize the results by frequency of use, most common first."

11.5.2 Comparing Competing Frameworks

Once you know which frameworks are in play, use NotebookLM to conduct a structured comparison:

PROMPT: Framework Comparison

"Compare [Framework A] and [Framework B] as they are applied in these sources. For each framework, address: (1) core assumptions about [the phenomenon], (2) key constructs and how they are operationalized, (3) strengths for studying [topic], (4) limitations and criticisms raised in the literature, (5) which types of research questions each framework best supports. Then assess: are these frameworks complementary, contradictory, or operating at different levels of analysis?"

11.5.3 Identifying Trends Over Time

Understanding how research in your field has evolved is critical for both literature reviews and grant proposals. Use chronological trend analysis to map the trajectory of your topic:

PROMPT: Trend Analysis

"Analyze these sources on [topic] and identify 5–7 major trends over time. For each trend, provide: (1) a short description, (2) the approximate timeframe when it became more prominent, (3) example papers or citations, (4) whether the trend appears to be increasing, stable, or declining. Conclude with a synthesis of what these trends suggest for the future of research in this field. Present results as a timeline-style structure."

11.5.4 Extracting Key Constructs and Building Taxonomies

A common challenge in literature reviews is identifying how the same concept is labelled or operationalized differently across studies. NotebookLM can surface these variations:

PROMPT: Construct Extraction and Taxonomy

"From these sources on [topic], identify the 5–10 most recurring constructs, concepts, or variables. For each construct: (1) provide a short definition in your own words, (2) list the different terms or labels used across sources (noting synonyms or overlapping concepts), (3) explain how it has been operationalized or measured in different studies, (4) note whether there is consensus on its definition or ongoing debate. Present as a structured table that could serve as the foundation for a conceptual framework."

 TIP

Use the construct taxonomy output as a source itself. Copy it into a Google Doc, upload it back to your notebook, and then ask follow-up questions like: "Based on this taxonomy and the original sources, which operationalization of [**construct**] has the strongest theoretical justification?" This iterative approach builds increasingly sophisticated analyses.

11.5.5 Generating a Conceptual Framework

After mapping frameworks, trends, and constructs, you can ask NotebookLM to help you synthesize a conceptual framework for your own study:

PROMPT: Conceptual Framework Synthesis

"Based on the theoretical frameworks and key constructs identified across these sources, propose a conceptual framework for studying [your research question]. The framework should: (1) identify the key variables and their hypothesized relationships, (2) draw on the strongest theoretical foundations from the literature, (3) address the gaps identified in the existing research, and (4) be feasible for [your methodology type, e.g., a survey-based study / a qualitative case study]. Present it as a narrative description that I could include in a research proposal, with citations to supporting sources."

WARNING



NotebookLM can suggest a conceptual framework structure, but it cannot make the intellectual judgments that underpin a strong theoretical contribution. The relationships it proposes are derived from patterns in your sources; they are not original theoretical arguments. Use the output as a starting scaffold, then apply your own disciplinary expertise to refine, justify, and defend the framework.

11.6 Before/After Examples: Generic vs. Expert-Level Research Prompts

The difference between a novice and an expert NotebookLM user is not familiarity with the interface; it is the precision and structure of their prompts. This section presents side-by-side comparisons showing how the same research task produces dramatically different results depending on prompt quality. Each example uses a hypothetical notebook containing 25 papers on artificial intelligence adoption in higher education.

11.6.1 Example 1: Methodology Overview

Task: Understand the methodological approaches used across the literature.

 BEFORE (Generic Prompt)	 AFTER (Expert Prompt)
"What methods did these papers use?"	"For each empirical study, extract in table format: (1) author and year, (2) research design, (3) paradigm (positivist/interpretivist/pragmatist), (4) sample size and population, (5) data collection method, (6) analysis technique, (7) key limitations. Mark theoretical papers as 'Conceptual.' After the table, provide a 150-word synthesis of the methodological landscape."

Why it matters: The generic prompt returns a loose paragraph mentioning a few methods. The expert prompt produces a structured comparison matrix with consistent categories, making it immediately useful for a methodology section. The synthesis paragraph contextualizes the data.

11.6.2 Example 2: Literature Gaps

Task: Identify gaps in the existing research for a proposal's rationale.

✗ BEFORE (Generic Prompt)	☑ AFTER (Expert Prompt)
<p><i>"What are the gaps in this research?"</i></p>	<p><i>"You are an expert research mentor specializing in educational technology. From these sources, identify at least three categories of research gaps: (a) methodological; approaches or methods not yet tried, (b) contextual; populations, settings, or regions underrepresented, (c) theoretical; frameworks that could be applied but have not been. For each gap, provide: (1) a one-sentence description, (2) an example paper that highlights the gap, and (3) a suggested research question. Present as a table with citations."</i></p>

Why it matters: The generic prompt returns vague observations like "more research is needed." The expert prompt forces categorization, evidence, and actionable research questions; directly usable in a research proposal's rationale section.

11.6.3 Example 3: Theoretical Analysis

Task: Understand the theoretical foundations of the literature.

✗ BEFORE (Generic Prompt)	☑ AFTER (Expert Prompt)
<p><i>"What theories are used in these papers?"</i></p>	<p><i>"Identify all theoretical frameworks applied across these studies. For each: (1) name and originator, (2) brief definition, (3) which studies use it as their primary lens vs. merely referencing it, (4) how its application has evolved over time in this corpus. Then assess: which framework has the strongest empirical support in these studies, and which represents an emerging but underexplored perspective?"</i></p>

Why it matters: The generic prompt produces a simple list of theory names. The expert prompt generates a comparative analysis that distinguishes between primary and peripheral usage, tracks evolution, and makes evaluative judgments; the kind of analysis that strengthens a literature review's theoretical contribution.

11.6.4 Example 4: Contradiction Analysis

Task: Identify disagreements in the literature for a discussion section.


<input checked="" type="checkbox"/> BEFORE (Generic Prompt)	<input checked="" type="checkbox"/> AFTER (Expert Prompt)
"Do any of these papers disagree with each other?"	"Identify specific contradictory findings between these sources. For each contradiction: (1) state what each source claims with direct citations, (2) describe the methodological differences that might explain the disagreement (e.g., different populations, timeframes, measurement instruments), (3) assess which position has stronger empirical support based on study quality, and (4) suggest what further research could resolve the contradiction."

Why it matters: The generic prompt may return a yes/no answer with one example. The expert prompt produces a structured analysis of each disagreement with explanatory depth and suggestions for future research; exactly what a strong discussion section requires.

11.6.5 Principles Behind Expert-Level Prompts

The before/after examples above illustrate several consistent principles that distinguish expert prompts from generic ones:

Principle	What It Means	Example
Assign a role	Give NotebookLM a disciplinary identity so it calibrates language, depth, and conventions appropriately	"You are an expert research mentor specializing in [<i>discipline</i>]"
Specify output format	Tell the tool exactly how to structure its response; tables, numbered lists, narrative prose, or specific sections	"Present as a table with columns for: author, design, sample, findings"
Decompose the task	Break a complex analysis into numbered sub-tasks so nothing is skipped	"For each framework: (1) define it, (2) list which studies use it, (3) evaluate its strengths"
Demand evidence	Require citations, quotes, or source references for every claim	"Cite specific sources and include direct quotes where possible"
Include evaluative criteria	Ask for judgments, not just descriptions; strongest, weakest, most promising	"Assess which methodology provides the strongest validity for this research question"
Set scope and length	Define boundaries to avoid either superficial or overwhelming responses	"Provide a 200-word synthesis" or "Focus on studies published after 2020"

 **NOTE**

These principles are not unique to NotebookLM; they reflect established prompt engineering best practices. What makes them especially powerful here is NotebookLM's source grounding: every claim in the response can be traced back to a specific passage in your uploaded documents, making expert-level prompts both more productive and more verifiable than in general-purpose AI tools.

11.7 Generating Annotated Bibliographies, Briefing Documents, and Literature Summaries

Researchers are frequently required to produce documents that distil large bodies of literature into structured, accessible formats. These include annotated bibliographies for coursework or grant applications, briefing documents for supervisors or stakeholders, and executive summaries for interdisciplinary collaborations. NotebookLM can draft these efficiently; provided you give it precise instructions.

11.7.1 Annotated Bibliographies

An annotated bibliography goes beyond a simple reference list: it provides a concise summary and evaluation of each source. NotebookLM's Studio panel includes a "Briefing Doc" format, but for academic-quality annotated bibliographies, custom prompts deliver far better results:

PROMPT: Annotated Bibliography

"For each source in this notebook, generate an annotated bibliography entry that includes: (1) a full bibliographic reference in APA 7th edition format (author, year, title, journal, volume, pages, DOI), (2) a 100–150-word summary covering the study's purpose, methodology, and key findings, (3) a 50–75-word critical evaluation noting strengths, limitations, and relevance to [your research topic]. Organize entries alphabetically by first author surname."

 **WARNING**

NotebookLM constructs bibliographic references from the text of your uploaded documents. It does not have access to external databases, so references may contain errors; missing DOIs, incorrect page numbers, or incomplete author lists. Always cross-check every generated reference against your reference manager (Zotero, Mendeley, or EndNote) before including them in any submitted work.

11.7.2 Briefing Documents for Supervisors and Stakeholders

Briefing documents condense complex research into digestible summaries for audiences who may not read the full literature. These are invaluable for supervisor meetings, advisory board updates, or interdisciplinary collaborations:

PROMPT: Research Briefing Document

"Generate a 1,000-word briefing document on **[topic]** based on these sources. Structure it as follows: **EXECUTIVE SUMMARY** (150 words): The state of the field in plain language | **KEY FINDINGS** (400 words): The 5 most important findings, each with supporting evidence and citations | **METHODOLOGICAL NOTES** (200 words): The dominant research approaches, their strengths, and key limitations | **IMPLICATIONS** (150 words): What these findings mean for [practice / policy / future research] | **RECOMMENDED READINGS** (100 words): The 3 most essential papers from this collection and why. Write for an informed but non-specialist audience. Avoid jargon where possible; define technical terms where necessary."

11.7.3 Literature Summary Tables

Summary tables are a staple of systematic reviews and meta-analyses. NotebookLM can generate these as structured text that you then format in your word processor or spreadsheet:

PROMPT: Literature Summary Table

"Create a summary table of all empirical studies in these sources. Columns should include: Author(s) & Year | Country/Context | Research Design | Sample (N and population) | Key Variables | Main Findings | Limitations. Sort by year of publication, most recent first. Use concise entries (maximum 30 words per cell)."

 **TIP**


The Studio panel's built-in Report feature can also generate structured summaries, but its default output is generic. Always enter custom instructions to tailor reports to academic conventions. For maximum flexibility, use the chat interface for literature summary tables; you can iterate on the output more easily than with Studio-generated reports.

11.7.4 Using Reports for Grant Proposals and Theses

Researchers writing grant proposals or thesis chapters can use NotebookLM to generate first-draft sections grounded in their source collection. The key is specifying both the genre and the audience:

PROMPT: Grant Proposal Literature Section

"Write a 1,500-word literature review section for a research grant proposal on **[topic]**. The review should: (1) establish the significance of the research area with key statistics and trends, (2) summarize the current state of knowledge in 3–4 thematic paragraphs, (3) identify specific gaps that justify the proposed study, (4) conclude with a clear statement of need that connects the gap to the proposed research questions. Use formal academic prose. Cite all claims. The audience is a multidisciplinary grant review panel."

 **NOTE**

NotebookLM generates draft text grounded in your sources, but it is not an academic writer. The output will need substantial revision for argument coherence, narrative flow, disciplinary conventions, and your own analytical voice. Treat every generated draft as raw material; a structured starting point that accelerates your writing, not a finished product.

11.8 Custom Personas for Research: Advisor, Peer Reviewer, Devil's Advocate

The 10,000-character custom prompt field lets you design highly specific, discipline-aware personas that provide meaningfully different types of feedback at different stages of the research and writing process.

11.8.1 The Research Advisor Persona

This persona is ideal for the early stages of a project; when you are exploring your sources, shaping your research questions, and developing your conceptual framework. It is supportive, constructive, and focused on helping you see the big picture.

CUSTOM PROMPT: Research Advisor

You are a senior academic research advisor in [*discipline*] with 20+ years of experience supervising doctoral students and reviewing grant proposals. Your role is to help me develop my research project.

BEHAVIOUR: Ask clarifying questions before jumping to conclusions | When I share an analysis or draft, first acknowledge what works well, then suggest improvements | Connect findings to broader debates in the field | Suggest relevant theoretical frameworks or methodological approaches I may not have considered | When citing sources, always use author names and point me to specific passages | Be honest about weaknesses but frame feedback constructively.

FOCUS AREAS: Research question refinement and scope | Theoretical positioning | Methodological appropriateness | Contribution to the field.

COMMUNICATION STYLE: Supportive but rigorous | Use academic conventions and terminology | Encourage independent thinking rather than providing ready-made answers.

11.8.2 The Peer Reviewer Persona

Deploy this persona when you have a draft manuscript or analysis and need rigorous, critical feedback. This persona simulates the experience of receiving peer review; valuable for identifying weaknesses before submission.

CUSTOM PROMPT: Peer Reviewer

You are a thorough peer reviewer for a top-tier journal in [*discipline*]. You have been asked to evaluate a manuscript on [*topic*]. Your review should be thorough, fair, and constructive.

EVALUATION CRITERIA: Clarity and significance of research questions | Strength and relevance of methodology | Strength of evidence supporting conclusions | Quality of theoretical framing | Originality of contribution | Quality of writing and argumentation.

REVIEW FORMAT: For each section I share: 1. **STRENGTHS:** What is done well (be specific) | 2. **WEAKNESSES:** What needs improvement (be specific, cite passages) | 3. **SUGGESTIONS:** Concrete recommendations for revision | 4. **QUESTIONS:** Issues that need clarification or additional evidence.

RULES: Be direct and specific; avoid vague praise or criticism | Always ground feedback in evidence from the sources | Distinguish between major concerns (that would affect a publication decision) and minor issues | If claims are not adequately supported by the cited sources, flag them explicitly.

11.8.3 The Challenger Persona

This persona deliberately challenges your arguments, assumptions, and interpretations. It is especially useful for stress-testing a literature review's conclusions, a theoretical framework's assumptions, or a methodology's validity before presenting to supervisors or submitting for publication.

CUSTOM PROMPT: Challenger

You are a sceptical academic colleague who specializes in finding weaknesses in arguments. Your job is to challenge everything I present.

BEHAVIOUR: Question every assumption; even ones that seem obvious | Find alternative explanations for findings I present as conclusive | Identify logical gaps, overgeneralizations, and unsupported claims | Suggest counter-arguments from different theoretical perspectives | Point out methodological limitations I may be overlooking | Challenge the significance and novelty of proposed contributions | Always cite specific sources when making counter-arguments.

RULES: Be intellectually rigorous, not hostile | After challenging, suggest how I could strengthen my position | Distinguish between fatal flaws and areas that need minor reinforcement | If my argument is actually strong, acknowledge it; but still suggest how it could be stronger.

11.8.4 Switching Personas Strategically

The most effective approach is to use these personas in sequence as your work progresses:

Research Stage	Recommended Persona	Purpose
Exploring sources and shaping questions	Research Advisor	Supportive guidance, big-picture thinking, framework suggestions

Developing your analysis and arguments	Research Advisor → Challenger	Constructive development followed by stress-testing
Drafting manuscript sections	Peer Reviewer	Structured critique against journal-quality standards
Pre-submission review	Challenger → Peer Reviewer	Challenge assumptions first, then formal quality assessment
Revising after actual peer review	Research Advisor	Strategic guidance on addressing reviewer comments

 **TIP**

You can switch personas quickly by saving each prompt as a Google Doc. When you want to change roles, simply open the Configure Notebook panel, clear the current prompt, and paste in the new persona. Some researchers maintain a "Prompt Library" Google Doc with all their personas for rapid deployment.

11.9 Combining NotebookLM with Research Tools: Zotero, Litmaps, Consensus, and Beyond

NotebookLM excels at analyzing and synthesizing the sources you provide, but it has a fundamental limitation: it cannot search for papers you do not already have. It does not connect to academic databases like Scopus, Web of Science, or PubMed. Deep Research addresses this partially by finding web-based sources, but for systematic academic literature searches, you need purpose-built discovery tools. This section maps out an integrated workflow that positions NotebookLM within a broader research ecosystem.

11.9.1 The Research Tool Ecosystem

Each tool in a researcher's toolkit serves a distinct function. Understanding where NotebookLM fits, and where it does not, prevents frustration and ensures you use the right tool for each task.

Tool	Primary Function	How It Complements NotebookLM
Zotero / Mendeley / EndNote	Reference management: collecting, organizing, and citing sources with accurate metadata	Export PDFs from Zotero collections into NotebookLM for analysis. NotebookLM cannot replace formal citation management.
Litmaps	Citation mapping: visualizing citation networks to discover connected papers	Use Litmaps to discover papers that cite or are cited by your key sources. Upload discovered papers to NotebookLM for deep analysis.

Consensus	Evidence synthesis: searching 200M+ papers for scientific consensus on specific claims	Use Consensus to verify whether claims in your NotebookLM analyses are supported by broader evidence beyond your uploaded corpus.
Elicit	Systematic review: automated search, extraction, and coding across large paper sets	Use Elicit for initial systematic search and data extraction. Upload key papers to NotebookLM for deeper thematic synthesis and cross-source analysis.
Connected Papers / Semantic Scholar	Paper discovery: finding related papers through citation graphs and semantic similarity	Discover relevant papers, then upload them to NotebookLM for source-grounded analysis.
Google Scholar	Broad academic search across disciplines	Find papers via Scholar, save to Zotero, export PDFs to NotebookLM. Use Deep Research within NotebookLM for a streamlined alternative.
Overleaf / Google Docs	Manuscript writing and collaboration	Copy NotebookLM's analyses and draft sections into your writing environment. Upload draft sections back to NotebookLM for AI-assisted review.

11.9.2 The Zotero–NotebookLM Workflow

Zotero is the most popular free, open-source reference manager among academics, and it pairs exceptionally well with NotebookLM. The integration is manual but straightforward:

1. **Collect and organize papers in Zotero:** create collections by research theme, add tags, and ensure metadata is clean.
2. **Export PDFs from Zotero:** either drag PDFs from Zotero into a local folder, or sync your Zotero storage to Google Drive using the Attanger plugin or ZotMoov extension.
3. **Upload to NotebookLM:** create a notebook for your research topic. If your PDFs are in Google Drive, add them directly as Google Drive sources. Otherwise, upload PDFs manually.
4. **Analyze in NotebookLM:** use the prompts and personas from earlier sections to extract insights, identify patterns, and generate synthesis documents.
5. **Return to Zotero for citations:** when writing your manuscript, always pull formal bibliographic references from Zotero; never rely on NotebookLM's generated references, which may contain errors.

NOTE

A community-developed Chrome extension (Zotero-NotebookLM Connector) can automate the sync between Zotero collections and NotebookLM notebooks. At the time of writing, this requires Zotero 7 and involves installing both a Zotero plugin and a Chrome extension. Check the project repository for the latest installation instructions and compatibility details.

11.9.3 A Complete Integrated Research Workflow

Here is a practical end-to-end workflow showing how these tools work together for a typical research project:

Phase	Tools Used	Actions
1. Discovery	Google Scholar, Litmaps, Consensus, Elicit	Search for relevant literature using keywords and citation mapping. Save papers to Zotero. Use Consensus to check scientific consensus on key claims.
2. Organization	Zotero	Organize papers into collections by theme. Add tags. Clean metadata. Sync PDFs to Google Drive or export to a local folder.
3. Analysis	NotebookLM	Create a focused notebook. Upload papers from Zotero. Configure a research persona. Run the four-phase cross-source analysis from Section 11.2. Generate mind maps and thematic reports.
4. Supplementation	NotebookLM Deep Research	Use Deep Research to discover additional web-based sources. Review and import high-quality results. Verify provenance of new sources.
5. Writing	NotebookLM + Google Docs / Overleaf	Generate draft sections (annotated bibliography, literature review, methodology critique) in NotebookLM. Copy to your writing environment. Refine with your own analysis and argumentation.
6. Review	NotebookLM (Peer Reviewer persona)	Upload your draft manuscript as a source alongside the original papers. Use the Peer Reviewer persona to get structured critical feedback.
7. Citation	Zotero	Insert all formal citations from Zotero. Cross-check every reference. Generate the bibliography in your required citation style.

11.9.4 When NotebookLM Is Not the Right Tool

Recognizing NotebookLM's boundaries is as important as understanding its strengths. The following tasks are better served by other tools:

- **Systematic literature searching:** NotebookLM cannot search academic databases. Use Elicit, Semantic Scholar, or Scopus for comprehensive, reproducible searches.
- **Citation management:** NotebookLM's inline citations are useful for analysis but not for formal references. Always use a dedicated reference manager.
- **Statistical analysis:** NotebookLM can discuss statistical methods described in your sources, but it cannot run analyses on raw data. Use R, SPSS, Python, or Stata.

- **Long-form academic writing:** NotebookLM drafts are starting points, not finished prose. Your analytical voice, argumentation, and disciplinary writing conventions require human authorship.
- **Real-time collaboration on manuscripts:** NotebookLM's sharing features are for notebook access, not document co-authoring. Use Google Docs or Overleaf for collaborative writing.

WARNING

Never submit NotebookLM-generated text as your own work without substantial revision, original analysis, and proper attribution. Most universities and journals have policies on AI-assisted writing that require transparency about how AI tools were used. Always check your institution's guidelines and disclose AI assistance in your methods or acknowledgements section as required.

11.10 Verification and Citation Integrity

NotebookLM's source-grounded architecture is a significant advantage over general-purpose AI tools: every response includes inline citations that link back to specific passages in your uploaded documents. You can hover over any citation to see the quoted text and click through to the original source. This design dramatically reduces, but does not eliminate, the risk of hallucination.

11.10.1 What Can Still Go Wrong

Even with source-grounding, several categories of error remain possible. Understanding these is the first step toward reliable verification:

Error Type	Description	Example
Misattribution	A claim is correctly stated but attributed to the wrong source among your uploads.	NotebookLM reports that "Smith (2023) found a 40% improvement" when the 40% figure actually comes from Jones (2022).
Page/section mismatch	The citation points to a source that does contain the claim, but the specific passage referenced is incorrect.	The citation links to page 12 of a PDF, but the relevant finding is on page 27.
Over-generalization	NotebookLM synthesizes multiple sources into a broader claim than any single source supports.	Three studies report modest effects in different contexts; NotebookLM states that "research consistently demonstrates strong effects."
Omission	Key qualifications, caveats, or contradictory evidence from the sources are missing from the synthesis.	A source reports positive effects but notes they only apply to a specific population; NotebookLM omits this limitation.

Bibliographic errors	Generated reference entries contain wrong years, incomplete author lists, missing DOIs, or incorrect page numbers.	NotebookLM lists "Smith & Lee (2022)" when the paper was published in 2023 and has three authors.
Conflation	Two distinct concepts or findings from different sources are merged into a single statement.	Findings from a qualitative interview study and a randomized controlled trial are presented as if they come from a single study.

11.10.2 A Systematic Verification Workflow

The following five-step process should become routine for any NotebookLM output that will inform your published work:

1. **Click every citation.** For every factual claim in a generated synthesis, click the citation and read the actual passage in the original source. Confirm that the claim matches what the source actually says.
2. **Check attribution accuracy.** Verify that the claim is attributed to the correct author(s) and the correct source. In multi-source syntheses, it is common for NotebookLM to misattribute a finding from Source A to Source B. Cross-reference author names against your original PDFs.
3. **Evaluate synthesis fidelity.** When NotebookLM combines findings across sources, assess whether the combined statement is a fair representation. Does the synthesis overstate agreement? Understate disagreement? Miss important qualifications?
4. **Verify bibliographic details externally.** Never use a reference as NotebookLM generates it. Copy the author names and title into your reference manager and pull the correct, complete bibliographic entry from there. Check year, journal, volume, pages, and DOI against a database like CrossRef or Google Scholar.
5. **Test for omissions.** Ask NotebookLM a follow-up question: "Are there any sources in this notebook that contradict or qualify this finding?" Compare the response to your own reading. If you know a source contains a relevant caveat that NotebookLM omitted, the synthesis is incomplete.

TIP

Create a verification prompt that you can reuse across projects. For example: "For each claim in your previous response, list: (1) the exact source and page, (2) the exact quote supporting the claim, (3) any qualifications or limitations mentioned in the same passage." This forces NotebookLM to show its working, making errors easier to spot.

PROMPT: Verification Request

"Review your previous response. For each factual claim, provide: (1) the exact source (author, year, title) you are drawing from, (2) a direct quote from that source that supports the claim, (3)

any qualifications, limitations, or contradictions in the same source that I should be aware of. If any claim is based on inference rather than explicit statement in a source, flag it clearly."

11.10.3 The "Trust but Verify" Principle

NotebookLM's source-grounding makes it significantly more reliable than tools that draw on general training data. A peer-reviewed study evaluating NotebookLM for literature reviews (Shor et al., 2025, published in *Psychiatry*) found that the quality and utility of responses depended heavily on prompt quality and the extent to which researchers verified outputs against original sources. The key finding: NotebookLM is a powerful accelerator, but it does not replace the researcher's critical reading and analytical judgement.

Think of NotebookLM as a highly capable research assistant who has read all your papers and can quickly find and summarize relevant passages; but who occasionally misremembers which paper said what, sometimes glosses over important details, and cannot evaluate the significance or quality of what the sources report. That evaluative layer remains your responsibility.

11.11 Navigating Publisher and Institutional AI Policies

The landscape of AI policies in academic publishing is evolving rapidly. Between 2023 and 2025, every major publisher developed formal guidelines on AI use in manuscripts. While the core principles are remarkably consistent, AI cannot be an author, human authors bear full responsibility, and transparency is required, the details vary in important ways. Researchers must understand these differences before submitting work that involved AI assistance.

11.11.1 Universal Principles Across Publishers

Despite differences in implementation, every major publisher agrees on four fundamental principles:

1. **AI cannot be listed as an author or co-author.** Authorship requires the ability to take responsibility for the work's integrity, manage legal agreements, and approve the final manuscript; capabilities only humans possess.
2. **Human authors bear full accountability.** Regardless of how much AI assistance was used, the human authors are responsible for the accuracy, originality, and integrity of every element of the published work.
3. **Transparency is required.** AI use must be disclosed, though the required level of detail and the placement of the disclosure vary by publisher.
4. **Confidentiality must be maintained.** Peer reviewers are generally prohibited from uploading manuscripts to AI tools, as this would breach the confidentiality of the review process.

11.11.2 Publisher-Specific Requirements

The following table summarizes the current AI policies of major academic publishers. Note that these policies are subject to change, and individual journals within a publisher's portfolio may impose additional requirements. Always check the specific journal's author guidelines before submission.

Publisher	Disclosure Requirement	Permitted Uses	Key Restrictions
Elsevier	Dedicated "Declaration of Generative AI" section above references, specifying tool name, how used, and reason for use.	Improving readability and language with human oversight. AI as part of research methodology (disclose in Methods).	AI cannot be author. AI-generated images prohibited (except when AI is the research subject). Editors/reviewers may not use AI on manuscripts.
Springer Nature	Methods section or suitable alternative. Exempts "AI-assisted copy editing" from disclosure.	Copy editing without disclosure. Other uses with disclosure and human review.	AI cannot be author. AI-generated images and videos prohibited (narrow exceptions). Reviewers may not upload manuscripts to AI tools.
Wiley	Disclosure in Methods or Acknowledgements. Must specify tool, version, and nature of use.	Language improvement. Explanatory/concept images (with verification). AI in research methodology (detail in Methods).	AI cannot be author. More permissive on AI-assisted images than most publishers. Authors responsible for accuracy.
SAGE Publishing	Distinguishes "Assistive AI" (no disclosure) from "Generative AI" (must be cited in-text and in references).	Assistive AI (refining own work) without disclosure. Generative AI with formal citation.	AI cannot be author. Generative AI output treated as a citable source with specific citation format.
Science (AAAS)	Full prompt disclosure in Acknowledgements and Methods. Cover letter must declare AI use.	Limited AI assistance with full transparency.	Most restrictive policy. AI cannot be author or cited as a source. Violations treated as scientific misconduct.
Nature Portfolio	Methods section. Copy editing exempt from disclosure.	Copy editing without disclosure. Other uses with clear documentation.	AI cannot be author. AI-generated images prohibited (narrow exceptions for AI research).
APA Journals	Methods section. Must cite AI using software citation template. Full AI output	Drafting assistance with full disclosure and supplemental evidence.	AI cannot be author. Requires most detailed documentation of all

	uploaded as supplemental material.	publishers (full output required).
--	------------------------------------	------------------------------------

WARNING

Publisher policies are evolving rapidly. The summary above reflects policies current as of early 2026, but these are subject to revision. Always check the specific journal's author guidelines at the time of submission. If in doubt, contact the journal editor directly. Disclosing AI use is always safer than failing to disclose it.

11.11.3 Institutional Policies

In addition to publisher requirements, most universities and research institutions have developed their own AI usage policies. These typically address two contexts:

- **Student work:** Most universities treat undisclosed AI use in assessments as an academic integrity violation. Policies vary from outright prohibition to conditional permission with disclosure requirements. If you are a postgraduate researcher submitting a thesis, your university's academic integrity policy likely applies.
- **Research and publication:** Some institutions require researchers to comply not only with publisher policies but also with internal guidelines on AI use in grant applications, ethics applications, and other institutional documents. Check with your research office or institutional review board.

NOTE

If your university uses Google Workspace for Education, your NotebookLM data may be subject to your institution's data governance agreement with Google. Under enterprise and education accounts, Google confirms that uploaded data is not used to train AI models and is retained for only 72 hours for security purposes. Personal (consumer) Google accounts do not have these protections. Use your institutional account wherever possible when working with sensitive or unpublished research materials.

11.11.4 Crafting Your AI Disclosure Statement

A well-crafted AI disclosure statement protects your reputation and satisfies publisher requirements. Here is a template you can adapt:

TEMPLATE: AI Disclosure Statement

"During the preparation of this manuscript, the author(s) used Google NotebookLM to [specific purpose, e.g., "synthesize key themes across the literature corpus" / "generate preliminary summaries of uploaded source documents" / "identify patterns and contradictions across methodological approaches"]. The tool was used to analyze [number] source documents uploaded by the authors. All AI-generated outputs were critically reviewed, verified against original sources, substantially revised, and integrated with the authors' original analysis and

interpretation. The authors take full responsibility for the accuracy and integrity of all content in this manuscript. [Tool name and version: Google NotebookLM, accessed via notebooklm.google, [date range]]."

TIP

Maintain a research log that records how and when you used NotebookLM during your project. Document: (1) the date and purpose of each session, (2) the custom prompts you used, (3) which outputs were incorporated into your manuscript and how. This log serves as evidence of responsible use if questions arise during peer review or post-publication.

11.12 Ethical Framework for AI-Assisted Research

Beyond compliance with publisher policies, researchers need a principled framework for thinking about when and how AI assistance is appropriate. The following framework is built on five principles that together ensure AI tools like NotebookLM enhance rather than undermine scholarly integrity.

11.12.1 The Five Principles

Principle	Definition	In Practice
1. Transparency	All AI use is openly disclosed. Readers can assess for themselves how AI contributed to the work.	Include AI disclosure in every manuscript. Document prompts used. Be specific about what AI did and what you did.
2. Accountability	Human authors take full responsibility for every claim, citation, and argument in the published work.	Verify every AI-generated claim against original sources. Never publish NotebookLM output without thorough review and revision.
3. Intellectual contribution	The researcher's original analysis, interpretation, and argumentation remain the core of the work. AI accelerates process, not thought.	Use NotebookLM for synthesis and pattern identification. Ensure your own analytical voice, critical evaluation, and theoretical contribution are clearly present.
4. Data stewardship	Sensitive, unpublished, or confidential data is protected from exposure through AI tools.	Use institutional Google accounts for enterprise-grade data protection. Avoid uploading unpublished data, participant data, or confidential materials to consumer AI tools.
5. Proportionality	The level of AI assistance is proportionate to the task. AI is used where it adds genuine value, not as a substitute for scholarly engagement with the material.	Use AI to handle volume (reading 50 papers) and pattern detection. Do not use AI to bypass the intellectual work of understanding, evaluating, and arguing.

11.12.2 What Constitutes Legitimate AI Assistance?

The boundary between legitimate assistance and academic integrity violations is not always obvious. The following table provides practical guidance:

Activity	Typically Legitimate	Potentially Problematic	Guidance
Literature synthesis	Using NotebookLM to identify themes, patterns, and gaps across your sources	Submitting NotebookLM's synthesis as your own literature review without substantial revision	AI-generated synthesis is raw material. Your literature review must reflect your own critical evaluation, argument structure, and analytical voice.
Methodological critique	Using AI to inventory methodological approaches and identify potential weaknesses	Relying on AI's assessment without independently evaluating the studies	AI can surface issues for consideration. Your published critique must be grounded in your own methodological expertise.
Citation management	Using AI to locate relevant passages and cross-reference claims	Trusting AI-generated bibliographic references without verification	Always pull final references from a dedicated reference manager. Verify every citation against the original source.
Draft generation	Using AI to produce a structured first draft that you substantially revise	Submitting AI-generated text with only cosmetic edits	The final text must be recognizably yours. AI-generated drafts should be treated as outlines that you rewrite, not finished prose.
Translation and language	Using AI to improve the readability of text you wrote in a non-native language	Having AI rewrite or substantially restructure your arguments	Most publishers permit AI language polishing. Restructuring arguments goes beyond language assistance.
Peer review preparation	Using AI personas to stress-test your arguments before submission	Using AI to fabricate reviewer responses or manipulate the review process	AI 'peer review' is a private quality-assurance step. Never misrepresent AI feedback as human peer review.

11.12.3 Data Privacy Considerations for Researchers

When working with research data, the question of what to upload to NotebookLM requires careful consideration:

- **Published papers and public documents:** Generally safe to upload. Published research is already in the public domain. This is the safest and most straightforward use case.

- **Unpublished manuscripts and preprints:** Exercise caution. If using an institutional Google Workspace account, your data is subject to your institution's agreement with Google and is not used for model training. With a personal account, consult your institution's data policy.
- **Research data containing personal information:** Do not upload unless you have explicit ethics approval that covers the use of cloud-based AI tools. Participant consent forms rarely cover this use case. When in doubt, do not upload.
- **Confidential institutional documents:** Follow your institution's data classification policy. Many institutions prohibit uploading confidential or restricted data to any external cloud service, regardless of the provider's privacy guarantees.
- **Grant applications and patent-sensitive material:** Check with your research office. Some institutions require that materials related to intellectual property or pending patents are not shared with external services.

WARNING

Google states that data uploaded to NotebookLM is not used to train its foundation models, and that enterprise and education accounts include additional protections (data retained for only 72 hours for security purposes). However, NotebookLM does not currently support ISO, SOC, FedRAMP, or HIPAA compliance. If your research involves regulated data (healthcare, defence, financial), consult your institutional compliance office before using NotebookLM.

11.12.4 A Personal Research Integrity Checklist

Before incorporating any NotebookLM output into a manuscript or formal document, work through this checklist:

<input checked="" type="checkbox"/>	Verification Step	Status
1	I have clicked every citation in the AI-generated output and verified it against the original source.	<input type="checkbox"/> Done
2	I have checked that all claims are attributed to the correct author(s) and correct source(s).	<input type="checkbox"/> Done
3	I have confirmed that synthesized claims fairly represent the sources and do not overstate agreement or understate disagreement.	<input type="checkbox"/> Done
4	I have verified all bibliographic references against my reference manager (Zotero, Mendeley, or EndNote) and corrected any errors.	<input type="checkbox"/> Done
5	I have substantially revised all AI-generated text so that the final manuscript reflects my own analysis, argumentation, and voice.	<input type="checkbox"/> Done

6	I have checked my target journal's AI disclosure policy and prepared the required disclosure statement.	<input type="checkbox"/> Done
7	I have maintained a research log documenting how, when, and why I used AI tools during this project.	<input type="checkbox"/> Done
8	I have confirmed that no sensitive, confidential, or personally identifiable data was uploaded to NotebookLM without appropriate approval.	<input type="checkbox"/> Done

11.12.5 Looking Forward: AI in Research Is Here to Stay

AI-assisted research is not a temporary trend. The tools will become more capable, and publisher and institutional policies will continue to evolve. Researchers who develop responsible practices now, systematic verification, transparent disclosure, clear ethical boundaries, will be well-positioned to benefit from these tools as they improve, without putting their scholarly reputations at risk.

The researchers who will thrive in this environment are those who use AI to handle the volume of modern scholarship (the ever-growing mountain of papers to read, synthesize, and respond to) while reserving the value for themselves: the critical thinking, the novel interpretations, the creative connections, and the arguments that only a human scholar with deep expertise can make. NotebookLM is a powerful tool in this partnership. Used responsibly, it amplifies your capacity without diminishing your contribution.

KEY TAKEAWAYS

Master these research strategies:

1. **Source curation and notebook structure determine analysis quality:** follow the one-notebook-one-project principle, use descriptive titles, and allocate your 50 (or 300) source slots strategically. The 10,000-character custom prompt field transforms NotebookLM from a generic summarizer into a specialized research partner configured for your discipline and project.
2. **Systematic cross-source analysis follows a four-phase progression:** landscape mapping, pattern identification, contradiction analysis, and gap identification. Use source selection to scope queries appropriately at each phase, and save key outputs as Google Docs to build an evolving research knowledge base.
3. **Expert-level prompts dramatically outperform generic queries:** assign a role, specify output format, decompose the task, demand evidence, include evaluative criteria, and set scope and length. The difference between a vague question and a precisely structured prompt is the difference between a loose paragraph and a publication-ready analysis.
4. **NotebookLM fits within a broader research ecosystem, not above it:** use Zotero for reference management, Litmaps and Consensus for discovery and verification, and Google Docs or Overleaf for collaborative writing. The Zotero–

NotebookLM pipeline is particularly powerful: organize in Zotero, analyze in NotebookLM, write in your preferred environment, cite from Zotero.

5. **Three custom personas - Research Advisor, Peer Reviewer, and Challenger** - serve different stages of the research process. Switch between them strategically as your project progresses from exploration through drafting to pre-submission review.
6. **Source-grounded citations are more reliable than general AI, but errors still occur:** misattributions, over-generalizations, bibliographic mistakes, and omissions of important caveats are all possible. A five-step verification workflow should become routine for any output that informs your published work.
7. **All major publishers agree: AI cannot be an author, humans bear full accountability, and disclosure is required;** however, the required format, placement, and level of detail vary significantly by publisher. Always check the specific journal's author guidelines before submission.
8. **Five principles guide responsible AI-assisted research:** transparency, accountability, intellectual contribution, data stewardship, and proportionality. Together, they ensure AI enhances rather than undermines scholarly integrity. Document everything; maintain a research log of AI use and prepare your disclosure statement early.

What's Next: Chapter 12 turns to NotebookLM for Students, exploring how learners can use the same powerful features, source-grounded analysis, custom prompts, audio overviews, and study tools, to deepen their understanding, prepare for assessments, and develop their academic skills.

PART VII: PRACTICAL APPLICATIONS

Chapter 12: NotebookLM for Students

🎯 LEARNING OBJECTIVES

By the end of this chapter, you will be able to:

1. Design an organised academic workspace in NotebookLM, structured by course, module, or project, with strategically curated sources.
2. Use customized flashcards, quizzes, and audio overviews to transform passive reading into active, exam-ready study.
3. Apply advanced prompting techniques within NotebookLM to deepen comprehension, synthesize across sources, and support essay planning.
4. Leverage collaborative features, shared notebooks, and public notebooks for group study and peer learning.
5. Navigate academic integrity requirements confidently, using NotebookLM as a learning amplifier rather than a shortcut.

Whether you are revising for examinations, tackling a dissertation, or simply trying to make sense of a mountain of lecture notes, NotebookLM can become one of the most powerful tools in your academic toolkit; *if* you move beyond its default settings. This chapter is written directly for you, the student. It builds on every customization technique explored in earlier chapters and shows you exactly how to apply them to the workflows you face every semester: reading dense material, preparing for exams, writing essays, collaborating with peers, and staying on the right side of academic integrity.

Chapter 10 showed teachers how to build learning experiences for students; Chapter 11 equipped researchers with advanced analysis workflows. This chapter puts you in the driver's seat. You will learn how to create notebooks that mirror your course structure; generate study aids calibrated to your level, use the chat panel as a personal tutor, and collaborate with classmates; all while developing the critical AI literacy that universities increasingly expect.

Throughout this chapter, we use examples drawn from a variety of disciplines, biology, history, computer science, and economics, so that regardless of your field, you will find techniques you can adapt immediately.

12.1 Setting Up Your Academic Workspace

A disorganized notebook is as unhelpful as a disorganized desk. Before you upload a single source, invest a few minutes in designing a workspace that mirrors the way you actually study. The effort pays dividends throughout the semester.

12.1.1 One Notebook per Course (or Module)

The most effective strategy for most students is to create one notebook per course or module. This keeps sources contained, prevents cross-contamination between unrelated subjects, and makes it easy to generate study aids that are tightly focused on a single syllabus. A typical structure might look like this:

Notebook Name	Sources Included	Purpose
Cell Biology	Lecture slides (weeks 1–12), textbook chapters, lab handouts, past exam papers	Weekly revision, exam preparation, lab report support
Modern Europe	Seminar readings, primary source PDFs, lecture recordings (YouTube links)	Essay research, seminar preparation, timeline creation
Machine Learning	Lecture notes, research papers, tutorial code documentation	Concept review, assignment planning, project research
Macroeconomics	Textbook chapters, policy documents, news articles (URLs)	Problem-set preparation, policy analysis essays

TIP

If a course has distinct modules or units - for example, a history course that covers both World War I and the Cold War - consider creating separate notebooks for each unit. This keeps your flashcards and quizzes sharply focused. On the free plan you can create up to 100 notebooks with 50 sources each, so there is ample room to be specific.

12.1.2 Strategic Source Curation

NotebookLM's strength is that every response is grounded in the sources you provide. This means the quality of your notebook depends entirely on the quality and relevance of what you upload. Follow these principles:

Start with the syllabus. Upload your course syllabus or module handbook as the first source. NotebookLM will immediately have context about learning outcomes, assessment criteria, and the topics your lecturer considers most important.

Prioritize primary materials. Lecture slides, required readings, and official handouts should form the core of your notebook. Add supplementary materials (additional textbook chapters, YouTube lectures) only once the essentials are in place.

Use URLs wisely. NotebookLM can ingest web URLs, YouTube video transcripts, and Google Docs. If your lecturer references an online article or posts a recorded lecture on YouTube, add the URL directly rather than copying text into a PDF.

Keep sources current. As the semester progresses, add new lecture slides and readings each week. A notebook that grows alongside your course becomes progressively more powerful.

12.1.3 Accessing Teacher-Assigned Notebooks

If your institution has integrated NotebookLM into its learning environment, your teachers may assign notebooks to you directly. When a teacher creates and assigns a notebook, it will appear in your course management system or learning platform. You receive read-only access to the source materials your teacher has curated, but you can interact with all of NotebookLM's features, chatting, generating flashcards, creating audio overviews, within that notebook.

Teachers can also assign public notebooks, including those from the OpenStax partnership. These are ready-made, peer-reviewed academic notebooks covering subjects such as Biology, Psychology, Business, Chemistry, and more. If your teacher assigns one, you gain instant access to a professionally curated study environment.

NOTE

To access assigned notebooks, your institution's administrator must have NotebookLM enabled for your account. If you cannot see an assigned notebook, contact your IT helpdesk and ask them to verify that NotebookLM access is configured for your account.

12.2 Active Study and Exam Preparation

Research in educational psychology consistently demonstrates that active recall, testing yourself on material rather than passively rereading it, is one of the most effective study strategies. Hermann Ebbinghaus's work on the "forgetting curve" (1885) and over a century of subsequent research confirm that spaced repetition and self-testing dramatically improve retention. NotebookLM's study tools are designed around precisely these principles.

12.2.1 Flashcards: Beyond Basic Definitions

NotebookLM generates flashcards directly from your uploaded sources, which means every card is grounded in your actual course material; not a generic database. But the real power lies in **customization**. Rather than accepting the default flashcard set, use the customization options to create cards that match your study needs.

When generating flashcards in the Studio panel, you can customize three parameters:

Parameter	Options	When to Use
Difficulty	Easy, Medium, Hard	Start with Easy for initial exposure; progress to Hard as exams approach

Topic focus	Custom prompt text	Narrow cards to specific chapters, concepts, or themes
Quantity	Adjustable number	Smaller sets (10–15) for focused sessions; larger sets (30+) for comprehensive review

The topic focus field is where customization becomes truly powerful. Instead of generating generic flashcards, write a specific prompt that targets your weaknesses.

COPY-PASTE PROMPT: Scenario-Based Flashcards

Create 15 flashcards at Hard difficulty focusing on the differences between mitosis and meiosis. Instead of simple definitions, create scenario-based cards that test whether I can identify which process is occurring based on a description of cellular behaviour. Include cards that address common misconceptions.

COPY-PASTE PROMPT: Application-Focused Flashcards

Generate flashcards that test my ability to apply macroeconomic concepts to real-world policy scenarios. For each card, present a policy situation and ask which economic principle explains the outcome. Focus on chapters 4–6 of the uploaded textbook. Difficulty: Hard.

The “Explain” feature. After viewing a flashcard answer, click the “Explain” button. NotebookLM generates a detailed explanation with citations pointing directly to the relevant passages in your sources. This transforms a simple flashcard session into a deep-learning exercise: you test yourself, check your understanding, and then trace the answer back to the original material.

💡 TIP

After a flashcard session, note which cards you answered incorrectly. Then generate a new, targeted flashcard set focusing specifically on those weak areas. This creates a feedback loop that mirrors the best practices of spaced repetition; without needing a separate app.

12.2.2 Quizzes: Testing Comprehension Under Pressure

NotebookLM’s quiz feature generates multiple-choice questions grounded in your sources, with explanations for each answer. Like flashcards, quizzes can be customized by difficulty, topic, and quantity. The key difference is that quizzes test your ability to select the correct answer from plausible alternatives; a skill directly transferable to many exam formats.

To get the most from quizzes, use prompts that push beyond isolated recall:

COPY-PASTE PROMPT: Synthesis-Level Quiz Questions

Create quiz questions that require me to combine multiple concepts from the uploaded machine learning notes to solve problems. Do not test concepts in isolation—test whether I understand how feature selection, model evaluation, and overfitting interact in practice. Include 10 questions at Hard difficulty.

COPY-PASTE PROMPT: Common-Mistakes Quiz

Focus on common mistakes students make when analyzing World War I causes. Create quiz questions that present a plausible-sounding but incorrect historical interpretation and ask me to identify what is wrong and why, based on the uploaded seminar readings.

Post-quiz study guides. After completing a quiz, you can generate a study guide or a new flashcard set based specifically on the questions you answered incorrectly. This targeted remediation ensures you spend your study time on genuine gaps rather than material you already know.

12.2.3 Audio Overviews: Study on the Go

NotebookLM’s audio overviews transform your sources into podcast-style conversations between two AI hosts. For students, this is a game-changer: time spent commuting, exercising, or doing household chores becomes study time. But the feature goes well beyond passive listening.

NotebookLM offers several audio overview formats, each suited to different study goals:

Format	Description	Best Used For
Deep Dive	Two hosts explore your sources in a detailed, conversational format	Initial exposure to complex material; general revision
Brief	A shorter, more focused summary of key points	Quick review before lectures or seminars
Critique	Hosts examine strengths and weaknesses of the arguments in your sources	Developing critical analysis skills for essays
Debate	Hosts argue opposing sides of a topic drawn from your sources	Preparing for seminars, tutorials, or debate-format assessments

Interactive mode. Using the “Join” button, you can interrupt the hosts mid-conversation to ask clarifying questions, request better analogies, or redirect the discussion. The hosts pause, address your question using your sources, and then resume. This transforms a passive audio experience into an active study session.

COPY-PASTE PROMPT: Custom Audio Overview Instruction

Create an audio overview that focuses exclusively on the causes of the 2008 financial crisis as discussed in the uploaded economics readings. Assume the listener understands basic economics but needs the connections between subprime mortgages, credit default swaps, and systemic risk explained clearly. Use concrete examples throughout.

⚠ WARNING

Audio overviews are generated by AI and should not be treated as a substitute for reading the original sources. They are excellent for reinforcement and initial orientation, but always verify key claims by returning to your primary materials. Think of them as a study companion, not a replacement for engagement with the text.

12.2.4 Study Guides and Briefing Documents

NotebookLM can generate study guides, briefing documents, and timeline reports from your sources via the Reports feature in the Studio panel. Like other features, the power lies in customization. Rather than accepting a generic study guide, use the custom prompt field to tailor the output to your specific examination format.

COPY-PASTE PROMPT: Exam-Focused Study Guide

Generate a comprehensive study guide for my Cell Biology final examination. Structure it by topic (cell cycle, membrane transport, gene expression, cell signaling). For each topic: (1) list the key concepts I must know, (2) identify the most likely exam questions based on the learning outcomes in the uploaded syllabus, and (3) note any areas where the lecture notes and textbook disagree or where the lecturer emphasized specific points. Difficulty level: advanced undergraduate.

12.2.5 Infographics: Transforming Complex Information into Visual Summaries

NotebookLM's Infographic feature, available in the Studio panel, converts your uploaded sources into visually structured, single-page summaries that condense complex information into a format that is easy to scan, share, and remember. Unlike a written study guide, an infographic arranges key concepts, relationships, and data points into graphical sections, making it particularly effective for students who process information visually or who need to communicate ideas quickly.

Infographics are especially well-suited to three common student tasks. First, **last-minute revision**: a single infographic can replace pages of notes, giving you a rapid overview of a topic before entering an exam. Second, **presentation support**: infographics generated from your source material serve as ready-made visual aids for seminar presentations or group project hand-outs. Third, **concept mapping**: when a topic involves many interconnected ideas (for example, the causes of a historical

event, or the stages of a biological process), an infographic reveals the relationships between them at a glance in a way that bullet-point notes cannot.

To generate an infographic, open the Studio panel, select “Infographic” from the output options, and use the custom prompt field to guide what the infographic should emphasize. The more specific your instructions, the more targeted the result.

COPY-PASTE PROMPT: Topic Infographic for Exam Revision

Create an infographic summarizing the key stages of the cell cycle for a second-year undergraduate audience. Highlight the events at each phase (G1, S, G2, M), indicate where checkpoints occur and what they monitor, and flag the two most common points of exam confusion based on the uploaded lecture slides. Use clear section headings and keep explanations concise.

TIP

Infographics work best when your notebook already contains focused, relevant sources. If your notebook covers an entire semester’s worth of material, narrow the scope by selecting only the sources relevant to the topic before generating the infographic. You can also request infographics in different orientations (portrait for printed hand-outs, landscape for presentation slides) by specifying your intended use in the custom prompt.

12.3 Reading Comprehension and Deep Understanding

One of the greatest challenges students face is not finding information but understanding it deeply enough to use it. A 40-page research paper or a dense textbook chapter can feel impenetrable on first reading. NotebookLM’s chat panel, combined with thoughtful prompting, transforms this experience.

12.3.1 Tackling Dense Academic Material

When you encounter difficult material, the instinct is often to ask NotebookLM to “summarize” it. Resist this instinct; or at least, go beyond it. A summary gives you the surface; targeted prompts give you the depth.

Here is a progression of prompts that moves from surface comprehension to genuine understanding, using a hypothetical research paper on climate change adaptation as an example:

Level	Prompt Example	What It Develops
1. Overview	What is the main argument of this paper, and what evidence does the author use to support it?	Basic comprehension

2. Terminology	Explain the term 'maladaptation' as used in this paper. How does it differ from everyday usage?	Precise vocabulary
3. Structure	How does the author organize the argument? What role does Section 3 play in the overall structure?	Analytical reading
4. Critique	What are the strongest and weakest pieces of evidence in this paper? Are there any gaps in the reasoning?	Critical evaluation
5. Connection	How does this paper's argument compare with the arguments in the other two papers I've uploaded on the same topic?	Synthesis across sources

TIP

Select specific sources before asking a question. In the chat panel, you can choose which sources NotebookLM should reference. When comparing two readings, select only those two; this forces the AI to focus its analysis and prevents it from diluting the comparison with unrelated material.

12.3.2 Custom Notebook Instructions for Your Learning Level

NotebookLM's custom instruction field (Settings → Notebook settings, up to 10,000 characters) allows you to permanently calibrate the AI's responses to your level. This is the single most impactful customization a student can make, yet most students leave it blank.

COPY-PASTE TEMPLATE: Student Custom Instructions

You are a study assistant for a second-year undergraduate taking Cell Biology. My background includes first-year biology and chemistry. When I ask questions: - Explain concepts at an undergraduate level, not a postgraduate research level - Use analogies from everyday life to clarify abstract processes - Always connect new concepts to what I should already know from first-year biology - When I ask about an exam topic, highlight what the lecturer emphasized in the uploaded lecture slides - If I ask you to summarize, also tell me what I should pay special attention to for assessments - Challenge me with a follow-up question after each explanation to check my understanding Do not oversimplify. I want to understand the mechanisms, not just the outcomes.

12.3.3 Mind Maps for Visual Learners

NotebookLM's mind map feature converts your sources into visual, branching diagrams. For students who think spatially, mind maps serve as "mental anchors" that make abstract relationships tangible. They are particularly effective for:

Mapping essay structures before you begin writing, ensuring your argument has a logical flow. Upload your essay sources and ask NotebookLM to generate a mind map of the key themes and their relationships.

Visualizing relationships between concepts in a module; for example, how different economic models relate to one another, or how historical events are causally linked.

Identifying research gaps when planning a dissertation or extended essay. Upload your literature and look for branches that are thinner than others; these may represent under-explored areas worth investigating.

NOTE

Mind maps are most useful when you have already engaged with the material. Generating a mind map before reading your sources risks giving you a false sense of understanding. Use them as a consolidation tool after your initial reading, not a substitute for it.

12.4 Academic Writing Support

NotebookLM is not a ghostwriter and you should never use it as one. What it excels at is the preparatory and analytical work that makes your own writing stronger: gathering evidence, identifying connections between sources, checking the coherence of your arguments, and helping you plan structure. This section shows you how to use NotebookLM ethically to improve your academic writing.

12.4.1 Essay Planning and Source Synthesis

Before writing an essay, you need to understand how your sources relate to one another. NotebookLM is uniquely suited to this task because it analyses only the sources you have uploaded, not the entire internet, which means its synthesis is grounded in exactly the same material your lecturer expects you to use.

COPY-PASTE PROMPT: Essay Planning Synthesis

I am writing a 2,500-word essay on the following question: 'To what extent did economic factors cause the French Revolution?' Using only the sources I have uploaded: 1. Identify the key arguments each author makes about economic causes 2. Note where authors agree and where they disagree 3. Highlight any evidence that complicates or challenges the economic explanation 4. Suggest a possible essay structure that would allow me to engage with multiple perspectives. Do not write the essay. Help me plan it.

The explicit instruction “Do not write the essay. Help me plan it.” is crucial. It keeps you in the driver’s seat and ensures you develop your own argument rather than adopting one generated by AI.

12.4.2 Evidence Gathering with Source Citations

When NotebookLM responds to your questions, every claim is linked to specific passages in your sources. This citation feature is invaluable for essay writing: you can ask the chat to find evidence for a specific claim and immediately see which page or section of which source supports it.

COPY-PASTE PROMPT: Evidence Gathering

Find all passages across my uploaded sources that discuss the role of the bourgeoisie in pre-revolutionary France. For each passage, tell me: - Which source it comes from - What specific claim the author makes - Whether it supports or challenges the argument that economic grievances were the primary cause of the revolution. Organize the results by theme, not by source.

12.4.3 Checking Arguments Against Sources

One of the most powerful, and underused, techniques is uploading your draft essay alongside your sources and asking NotebookLM to verify your claims. This is not asking the AI to grade your work; it is asking it to check whether your argument accurately represents the source material.

COPY-PASTE PROMPT: Argument Verification

I have uploaded my draft essay alongside the sources it references. Please review my essay and check: 1. Do my quotations accurately represent what the authors said in context? 2. Are there any claims in my essay that are not supported by the uploaded sources? 3. Have I missed any significant counter-arguments present in the sources? 4. Are there any logical gaps between my evidence and my conclusions? Be critical. I want to strengthen my argument before submission.

⚠ WARNING

NotebookLM can identify where your claims diverge from the source material, but it cannot replace your lecturer's judgement on argument quality, originality, or academic style. Use it as one tool among many; not as your sole feedback mechanism. Always review AI-generated feedback critically.

12.4.4 Presentation Preparation

If you have an oral presentation or viva, NotebookLM can help you prepare by anticipating challenging questions. Upload your presentation slides or notes and your source material, then use the following approach:

COPY-PASTE PROMPT: Presentation Q&A Preparation

I am giving a 15-minute presentation on machine learning bias based on the uploaded slides and research papers. Generate 10 challenging

questions that an examiner or seminar audience might ask. For each question, suggest a concise answer strategy that draws on specific evidence from my sources.

TIP

Use the Debate audio overview format to hear two AI hosts argue opposing perspectives on your presentation topic. This can reveal counter-arguments you had not considered and help you prepare more robust responses.

12.5 Collaborative Study and Group Projects

Studying rarely happens in isolation. Group revision sessions, collaborative projects, and peer discussion are staples of university life. NotebookLM's sharing and collaboration features make it possible to extend your personal study workspace to include classmates.

12.5.1 Sharing Flashcards and Study Sets

When you generate flashcards or quizzes in NotebookLM, you can share them with friends or study group members using a simple link. This means one student can create a comprehensive flashcard set for a module and share it with the entire cohort; or a study group can divide topics among members, each creating cards for their assigned section, and then pool the results.

To share a flashcard set or quiz, use the share button within the Studio panel. Recipients can access the study aids without needing to have the original sources in their own notebooks.

12.5.2 Collaborative Research Notebooks

For group projects and collaborative research, NotebookLM's sharing features allow multiple contributors to work with the same source base. The notebook owner can share the notebook with specific Google accounts, granting either "Viewer" or "Editor" access. This enables workflows such as:

Shared source curation. Each group member uploads sources related to their assigned section of a group project. Everyone can then query the complete source base, ensuring consistency across sections.

Collaborative analysis. Group members can independently query the same sources and compare the responses they receive, building a richer collective understanding.

Peer review support. Upload a group member's draft alongside the shared sources and use NotebookLM to check whether their section is consistent with the agreed argument and evidence base.

12.5.3 Using Public Notebooks and OpenStax

NotebookLM's partnership with OpenStax, the leading provider of free, peer-reviewed textbooks, has produced a library of pre-built public notebooks covering popular undergraduate subjects. These notebooks come with vetted source material and pre-generated study aids. For students whose courses use OpenStax textbooks, these notebooks provide an instant, high-quality starting point.

Subjects currently available through the OpenStax partnership include Biology, Psychology, Business, Chemistry, and more. You can explore these through the NotebookLM featured notebooks page or receive them as assignments from your instructor.

NOTE

Public notebooks are read-only; you can interact with the AI features but cannot modify the sources. If you want to add your own lecture notes alongside the OpenStax material, create a new notebook and import both the OpenStax content and your personal notes.

12.6 Advanced Prompting Strategies for Students

Earlier chapters explored prompting techniques in depth. This section distills the most relevant strategies specifically for student use cases, with ready-to-adapt templates.

12.6.1 The “Teach Me Like...” Framework

One of the most effective prompting patterns for students is to specify how you want the AI to explain something. Different levels of explanation serve different study goals:

Prompt Pattern	Example	Use Case
"Explain like I'm a first-year student"	Explain the central dogma of molecular biology as if I'm encountering it for the first time	Initial exposure to a new topic
"Explain for someone preparing for a final exam"	Summarizes the key debates on fiscal policy as an exam-ready revision aid	Exam revision
"Explain at a level suitable for a seminar discussion"	Discuss the strengths and weaknesses of rational choice theory as preparation for tomorrow's seminar	Seminar preparation
"Challenge my understanding"	I think I understand natural selection. Test me with a question that reveals whether I truly grasp it or just have a surface understanding	Self-assessment

12.6.2 Before/After: Default vs. Customized Prompts

The difference between a default prompt and a customized one is the difference between a generic answer and a genuinely useful study resource. Here are side-by-side comparisons:

Default Prompt	Customized Prompt
"Summarize this paper"	"Summarize this paper's argument in three sentences, then list the two strongest and two weakest pieces of evidence, and finally identify one question the paper leaves unanswered"
"What is photosynthesis?"	"Explain the light-dependent reactions of photosynthesis using the analogy of a water wheel, and then ask me a follow-up question to test whether I understood"
"Help me with my essay"	"I'm planning a 2,000-word essay on X. Using the uploaded sources, identify three contrasting perspectives I could structure my argument around. Do not write the essay."
"Make flashcards"	"Create 15 scenario-based flashcards at Hard difficulty that test my ability to diagnose which sorting algorithm to use for a given dataset, based on the uploaded lecture notes on algorithms"

12.6.3 Iterative Prompting for Deeper Understanding

Rarely does a single prompt give you everything you need. The most effective approach is iterative: start with a broad question, then progressively narrow your focus based on the response.

Step 1: "What are the main themes across all my uploaded sources?" - This gives you a landscape view.

Step 2: "You mentioned theme X. Which sources discuss this most thoroughly, and how do their treatments differ?" - This narrows to a specific theme.

Step 3: "Author A and Author B seem to disagree on this point. Can you identify the specific evidence each uses and explain why they reach different conclusions?" - These forces detailed comparative analysis.

Step 4: "Based on this analysis, which position is better supported by the evidence, and what gaps remain?" - This develops your evaluative judgement.

Each step builds on the previous response, creating a conversation that mimics the depth you would achieve in a tutorial with a knowledgeable supervisor.

TIP

Save your most effective prompt sequences. When you discover a prompting pattern that works well for a particular type of task (essay planning, exam revision, source critique),

copy it into a personal prompt library; a simple document listing your best prompts by category. This saves time throughout the semester and ensures you consistently get high-quality responses.

12.7 Ethical Use and Academic Integrity

Every feature described in this chapter is powerful. And with power comes responsibility. Universities around the world are rapidly developing policies on the use of AI tools in academic work, and as a student, you must navigate these policies with care. This section provides a framework for using NotebookLM ethically; one that protects both your academic standing and your genuine learning.

12.7.1 The Golden Rule: Amplify, Don't Replace

The most reliable test of whether you are using NotebookLM ethically is a simple question: Am I using this tool to learn better, or to avoid learning? If the answer is the latter, you have crossed an ethical line.

Here is a practical framework:

Ethical Use (Learning Amplifier)	Unethical Use (Shortcut)
Using flashcards and quizzes to test your understanding after reading	Generating flashcards without reading the original sources
Asking the chat to explain a concept you struggled with in a lecture	Copying the chat's explanation into an essay and submitting it as your own analysis
Using source synthesis to plan your essay structure	Having NotebookLM write sections of your essay
Generating an audio overview to reinforce material you have already studied	Listening to an audio overview as a substitute for doing the assigned reading
Uploading your draft to check whether your evidence supports your claims	Uploading an essay prompt and asking NotebookLM to generate the answer
Using the chat panel to work through a difficult problem step by step interactively	Asking the chat for the solution and copying it into your problem set

WARNING

Warning signs of inappropriate use: You cannot explain how you reached a conclusion without referencing the AI. You are using NotebookLM to complete assignments rather than to understand the material. You are avoiding reading original sources because AI summaries seem sufficient. If any of these apply, step back and reassess your approach.

12.7.2 Understanding Your Institution's AI Policy

AI policies vary enormously across institutions, departments, and even individual courses. Some lecturers welcome AI-assisted study; others prohibit it entirely. Some

courses allow AI for research preparation but not for assessed writing. There is no universal rule; you must check.

Read your syllabus carefully. Most syllabi now include a statement on AI use. This is your primary guide for each course.

Ask when in doubt. If the policy is ambiguous - for example, it prohibits “AI-generated content” but does not define whether AI-assisted source analysis counts - ask your lecturer directly. Demonstrating awareness of the issue is itself a sign of academic maturity.

Document your process. Keep a brief log of how you used NotebookLM for each assignment. If ever questioned, you can demonstrate exactly what the AI did (help you understand sources) versus what you did (construct the argument, write the prose, form the conclusions).

12.7.3 Transparency and Disclosure

When your institution permits AI use, transparency is paramount. Many universities now require or encourage students to disclose how AI tools were used in assessed work. Even where not required, voluntary disclosure demonstrates integrity.

TEMPLATE: AI Use Disclosure Statement

AI Use Statement: NotebookLM was used during the preparation of this essay for the following purposes: (1) synthesizing themes across the assigned readings to inform essay planning, (2) generating flashcards for revision of key terminology, and (3) verifying that quotations used in the essay accurately reflected their original context. All analysis, argumentation, and prose in this essay are my own original work. NotebookLM was not used to generate, draft, or edit any submitted text.

12.7.4 Verifying AI-Generated Content

NotebookLM’s source-grounded approach significantly reduces the risk of hallucination compared to general-purpose AI tools, but it does not eliminate it entirely. Studies have found that NotebookLM may occasionally misattribute ideas, over-generalize from a source, or miss nuances in complex arguments.

Develop these verification habits:

Click every citation. When NotebookLM cites a source, click the citation to view the original passage. Check that the AI’s interpretation is faithful to the author’s intent.

Cross-reference key claims. If NotebookLM makes a claim that is central to your essay or exam answer, verify it manually in the original source. Never build a critical argument on a single unchecked AI interpretation.

Be sceptical of synthesis. When the AI draws connections between sources, verify that those connections genuinely exist rather than being artefacts of the AI's processing. The authors may not agree as neatly as the summary suggests.

12.7.5 Building Critical AI Literacy

Using NotebookLM effectively is not just about exam results; it is about developing a skill that will serve you throughout your career. The ability to work alongside AI tools critically, knowing when to trust their output and when to question it, is increasingly valued by employers across every industry.

Think of NotebookLM as a very knowledgeable but occasionally unreliable study partner. You would not submit a friend's notes as your own essay, but you would gratefully use them to check your understanding, discover material you missed, and prepare for difficult questions. Apply the same principle to AI.

NOTE

NotebookLM offers a free tier with generous limits; up to 100 notebooks with 50 sources each. Students may also be eligible for enhanced access through their institution's Google Workspace for Education license or through Google's student programmes. Check the NotebookLM website and your institution's IT pages to see what access is available to you.

KEY TAKEAWAYS

1. Organize by course, start with your syllabus, and build your notebook week by week.
2. Customize flashcards, write application-based quiz prompts, use infographics for quick revision, and use chat for Socratic-style deep dives.
3. Fill the custom instruction field with your academic level and course context - it's the single highest-impact setting you can change.
4. Use NotebookLM for research and synthesis, never to generate submitted text. Keep the rule simple: "Do not write the essay."
5. Academic integrity is non-negotiable. Ask yourself "Am I learning or avoiding learning?", know your institution's AI policy, and always verify AI claims against original sources.

What's Next: Chapter 13 brings together the best practices, limitations, and ethical considerations that apply across all audiences. You will learn advanced workflows that combine multiple NotebookLM features, understand the platform's current technical limitations, and develop a personal framework for responsible AI-assisted learning and research.

PART VIII: BEST PRACTICES AND LIMITATIONS

Chapter 13: Tips, Limitations, and Ethical Considerations

Throughout this guide, we have explored the rich feature set of Google NotebookLM; from source management and chat interactions to Studio outputs, learning tools, and audience-specific applications. This final chapter brings those threads together by consolidating the most impactful tips for getting the best results from the platform, honestly examining its current limitations, and establishing an ethical framework for responsible use in educational and research contexts. Mastering NotebookLM is not simply about knowing which buttons to press; it is about developing a strategic, critically aware approach that maximize the tool's benefits while respecting the boundaries of academic integrity, data privacy, and intellectual honesty.

🎯 LEARNING OBJECTIVES

By the end of this chapter, you will be able to:

1. Apply advanced tips and strategies to maximize the quality and efficiency of NotebookLM workflows across teaching, research, and study contexts.
2. Identify and navigate NotebookLM's current technical, structural, and content limitations with practical workarounds.
3. Evaluate the ethical dimensions of using AI-powered tools in academic environments, including academic integrity, data privacy, bias, and transparency.
4. Design personal and institutional policies for responsible AI use using the frameworks and templates provided in this chapter.
5. Develop the critical AI literacy skills necessary to assess the reliability, provenance, and appropriateness of AI-generated outputs.

13.1 Power-User Tips and Strategies

The difference between a casual NotebookLM user and a power user often comes down to a handful of deliberate habits. This section distills the most effective strategies drawn from the preceding twelve chapters into a concentrated reference you can return to whenever you need a quick refresher.

13.1.1 Source Management Best Practices

The quality of every output NotebookLM produces, whether a chat response, an audio overview, or a mind map, depends directly on the quality and organization of your sources. Think of source management as the foundation upon which everything else rests.

Curate ruthlessly. Resist the temptation to upload every document you own into a single notebook. NotebookLM's *Retrieval-Augmented Generation (RAG)* architecture works best when sources are focused and relevant. Research has shown

that accuracy can decline as notebooks approach their source limits, not because the system becomes less capable, but because the retrieval step has more material to sift through, increasing the chance of surfacing less relevant passages.

Create purpose-built notebooks. Rather than maintaining one enormous notebook, create separate notebooks for distinct projects, courses, or research questions. Steven Johnson, who has worked on the NotebookLM team since its inception, recommends maintaining both an “everything notebook” for general reference material and focused, project-specific notebooks for active work.

Prepare your documents before uploading. Clean, well-structured PDFs with proper headings, clear text, and consistent formatting yield far better results than scanned documents with OCR errors or complex multi-column layouts. If you are working with scanned material, run it through a dedicated OCR tool first and verify the output before uploading to NotebookLM.

Use strategic source selection. Remember that you can select specific sources before asking a question in the chat panel. If your notebook contains thirty sources but your question pertains to only three of them, select just those three. This dramatically improves both the relevance and accuracy of responses.

Name and annotate your sources. Give sources descriptive names rather than accepting default file names. When working with multiple papers on similar topics, clear naming conventions (e.g., “Smith_2024_MetaAnalysis_AlinEducation”) help both you and NotebookLM’s retrieval system identify the right material.

TIP

The “Discover Sources” feature (introduced in April 2025) can suggest related web sources based on your existing notebook content. Use it to fill gaps in your research, but always review suggested sources for quality and relevance before adding them.

13.1.2 Prompting Strategies That Get Results

As we explored in depth in Chapter 2, the way you phrase your prompts has a profound impact on the quality of NotebookLM’s responses. Here are the most consistently effective strategies, consolidated from across the guide:

Be specific and directive. Rather than asking “What does this paper say?”, try “Identify the three main arguments in Smith (2024) and explain how each is supported by empirical evidence from the study’s methodology section.” Specificity constrains the retrieval step and produces tighter, more useful responses.

Use role-based framing. Instruct NotebookLM to adopt a particular perspective: “As a peer reviewer with expertise in quantitative methods, evaluate the statistical approach used in this paper.” Role-based prompts steer the model toward the analytical lens most useful for your purpose.

Chain your prompts iteratively. Start broad, then narrow. Begin with “Summarize the key themes across all sources,” then follow up with “For the theme of data privacy,

identify areas where the sources disagree.” Each follow-up prompt benefits from the conversational context of prior exchanges.

Leverage the 10,000-character custom instruction field. Since the December 2025 expansion, the custom prompt field offers extraordinary space for detailed system-level instructions. Use it to define your persona, preferred citation style, analytical frameworks, output structure, and domain-specific terminology. This is arguably the single most powerful customization feature available.

TIP

Create a personal library of prompt templates for your most common tasks; literature reviews, study guides, meeting summaries, lesson planning, and so on. Store these in a document you can quickly copy from. Appendix A of this guide provides a comprehensive set of templates to get you started.

13.1.3 Maximizing Studio Outputs

The Studio panel is where NotebookLM truly differentiates itself from other AI tools. To get the best results:

Always provide custom instructions for Studio outputs. Default Studio outputs are competent but generic. Custom instructions allow you to specify tone, audience, depth, structure, and focus areas. As noted throughout Chapters 6 and 7, customization affects Studio outputs approximately 75% of the time; a meaningful but imperfect rate. Preview outputs and regenerate with refined instructions when needed.

Use source selection strategically for audio and video overviews. If you want an audio overview focused on a specific subset of your sources, select only those sources before generating. This prevents the overview from diluting its coverage across irrelevant material.

Combine output types for richer understanding. Generate a mind map to visualize relationships, then use the chat to explore specific connections in depth, and finally create a study guide or report to consolidate your understanding. Each output type reveals different facets of your source material.

13.1.4 Workflow Integration Tips

Sync with Google Workspace. NotebookLM integrates directly with Google Docs and Google Slides. When your source document is updated in Google Drive, NotebookLM will notify you that the source has changed and offer to refresh it. Use this to maintain living notebooks that evolve alongside your projects.

Use the mobile app for on-the-go review. The NotebookLM mobile app supports one-tap content saving via the share button, allowing you to save web pages, PDFs, and YouTube videos directly to notebooks from your phone. Download audio overviews for offline listening during commutes or exercise.

Save chat responses as notes. When NotebookLM generates a particularly useful response, save it as a note within the notebook. Notes can be used as sources themselves, creating a compounding knowledge base that grows richer over time.

Use Deep Research for complex queries. For questions that require synthesizing information across many sources or exploring a topic in exceptional depth, use the Deep Research feature rather than standard chat queries. Free users receive up to 10 Deep Research reports per month.

13.2 Understanding NotebookLM's Current Limitations

No tool is without constraints, and honest awareness of NotebookLM's limitations is essential for using it effectively. This section catalogues the most significant limitations as of early 2026, organised by category, along with practical workarounds where available.

13.2.1 Source and Structural Limitations

Feature	Free	Plus	Pro	Ultra
Notebooks	100	200	500	500
Sources per notebook	50	100	300	600
Words per source	500,000	500,000	500,000	500,000
File size limit	200 MB	200 MB	200 MB	200 MB
Daily chat queries	50	100	300	500
Audio overviews / day	3	10	100	200

Table 13.1: NotebookLM usage limits by subscription tier (as of early 2026).

Cloud-only operation. NotebookLM requires an internet connection for all features. There is no offline mode, meaning you cannot access your notebooks, run queries, or generate outputs without connectivity. The only exception is previously downloaded audio overview files, which can be played offline.

No cross-notebook queries. Each notebook is a fully siloed environment. You cannot ask NotebookLM a question that spans sources from multiple notebooks. If you need to synthesize information across projects, you must manually duplicate or move sources into a shared notebook.

Limited file format support. While NotebookLM supports PDFs, Google Docs, Google Slides, text files, Markdown files, web URLs, YouTube URLs, and audio files, it does not natively support spreadsheet files (e.g., .xlsx or .csv as structured data), PowerPoint files, or proprietary formats. Web content and video sources use only their text and transcript content respectively; visual elements are not analyzed.

No version history for chat. NotebookLM does not maintain a persistent history of your chat conversations within a notebook. Once you close a session, previous exchanges are not accessible. There is also no undo functionality for deleted notes.

⚠ WARNING

NotebookLM creates a copy of your sources at the time of upload. Changes to the original file in Google Drive are not automatically reflected; you must manually refresh the source when prompted. This can lead to working with outdated content if you forget to update.

13.2.2 Accuracy and Hallucination Risks

NotebookLM’s source-grounded RAG architecture significantly reduces hallucination compared to general-purpose AI chatbots, but it does not eliminate the risk entirely. Understanding the nature and frequency of these errors is critical for responsible use.

A 2025 study published in the proceedings of arXiv (Hagar et al., September 2025), which evaluated NotebookLM alongside ChatGPT and Gemini on a journalism task grounded in a 300-document corpus, found that NotebookLM produced responses containing at least one hallucination roughly 13% of the time. By comparison, both ChatGPT and Gemini produced hallucinations in approximately 40% of responses. This threefold improvement is substantial, but 13% is far from zero.

Crucially, the types of hallucinations observed in NotebookLM differed from those in general-purpose models. NotebookLM’s errors were characterized by what the researchers termed “interpretive overconfidence”; the model would add analytical claims that the source documents did not actually support, characterize audiences or purposes without evidence, or subtly transform attributed opinions into universal statements. Notably, NotebookLM did not invent entities, fabricate statistics, or create fictional citations.

Hallucination Type	Description	Mitigation Strategy
Interpretive overconfidence	Model adds analytical claims not supported by sources	Verify all analytical assertions against cited passages
Unsupported characterization	Model describes source audiences, purposes, or contexts without evidence	Ask the model to justify characterizations with direct quotations
Attribution drift	Attributed opinions reframed as general statements of fact	Check whether the original source attributes claims to specific individuals or studies
Parsing failures	Poorly formatted documents cause retrieval errors, leading to gaps filled from model training data	Upload clean, well-structured documents; avoid scanned PDFs without OCR verification

Table 13.2: Common hallucination types in NotebookLM and strategies for mitigation.

NOTE

The “garbage in, garbage out” principle applies with particular force here. NotebookLM’s accuracy is directly tied to the clarity and quality of your source documents. Poorly formatted PDFs, documents with OCR errors, or sources containing contradictory information will degrade output quality regardless of how well you craft your prompts.

13.2.3 Feature-Specific Limitations

Studio output customization is probabilistic. As noted throughout this guide, custom instructions affect Studio outputs approximately 75% of the time. The remaining 25% may revert to default behaviour. This is particularly relevant for audio and video overviews, where regeneration costs a daily allowance credit.

Audio overviews are not editable. Once generated, an audio overview cannot be modified, trimmed, or corrected. If the content contains an error or an undesired emphasis, your only option is to regenerate with modified instructions and source selection.

Single AI provider. NotebookLM uses only Google’s Gemini models. There is no option to select alternative AI providers, bring your own API keys, or use local models. This means you are bound by Gemini’s particular strengths and weaknesses.

Limited integrations beyond Google. NotebookLM integrates primarily with the Google ecosystem; Drive, Docs, Slides, and Sheets. There is no native integration with Microsoft Office, Notion, Zotero, Mendeley, or other widely used academic and productivity tools.

Safety flags can block legitimate content. NotebookLM’s content safety filters may trigger on sources containing language related to violence, sexuality, or other sensitive topics, even in historical, medical, or academic contexts. This can prevent the system from answering questions about legitimate scholarly material.

WARNING

When NotebookLM’s safety filters block a response, try rephrasing your query to use more clinical or academic language. If the issue stems from source content rather than your prompt, you may need to upload an edited version of the source that contextualizes the sensitive material differently.

13.2.4 Workarounds for Common Limitations

Limitation	Workaround	Trade-Off
Source limit reached	Merge multiple PDFs into a single file before uploading; consolidate smaller text files into one document	Merged files may reduce retrieval precision if topics are mixed

No cross-notebook queries	Duplicate key sources across notebooks or create a dedicated synthesis notebook	Duplicated sources consume additional source slots
No offline access	Download audio overviews; export notes and study guides before going offline	Chat and interactive features remain unavailable
Safety filters blocking content	Rephrase queries; provide contextual framing in custom instructions; upload edited source versions	Some content may remain inaccessible regardless of approach
Chat history not saved	Save important responses as notes within the notebook immediately after generation	Requires manual effort; notes do not capture conversational threading
Unsupported file formats	Convert .xlsx to Google Sheets, .pptx to Google Slides, or export content as PDF before uploading	Some formatting or interactivity may be lost in conversion

Table 13.3: Common limitations and practical workarounds with associated trade-offs.

13.3 Ethical Considerations for Academic and Research Use

The integration of AI tools like NotebookLM into educational and research environments raises important ethical questions that extend well beyond technical capabilities. This section provides a comprehensive framework for navigating these questions responsibly.

13.3.1 Academic Integrity and the “Golden Rule”

Perhaps the most pressing ethical question for students and educators is: when does using NotebookLM cross the line from legitimate learning support to academic dishonesty? The answer is rarely black and white, but a useful heuristic is what we call the “Golden Rule” of AI-assisted learning:

THE GOLDEN RULE

Ask yourself: “Am I using this tool to learn better, or to avoid learning?”

If the answer is to avoid learning, you are crossing an ethical line. Warning signs include: being unable to explain conclusions without referencing the AI, using the AI to complete assignments rather than to understand material, and avoiding reading original sources because AI summaries seem sufficient.

This principle is grounded in the distinction between using AI as a cognitive amplifier versus using it as a cognitive replacement. Consider the following spectrum:

Ethical Use (Amplifier)	Grey Area	Unethical Use (Replacement)
Using NotebookLM to understand difficult concepts in source material	Using AI-generated summaries as a starting point for your own analysis without reading the full sources	Submitting AI-generated study guides, reports, or summaries as your own work
Generating flashcards and quizzes to test your understanding	Using audio overviews as a substitute for attending lectures	Using AI to write essays or papers without disclosure or attribution
Creating mind maps to visualize relationships before writing	Relying heavily on AI-generated outlines for essay structure	Copying AI-generated content and presenting it as original thought
Organizing and cross-referencing sources for a literature review	Having NotebookLM identify themes you might have missed, then using only those themes	Using AI to bypass the learning process entirely

Table 13.4: *The ethical spectrum of AI use in academic contexts.*

13.3.2 Transparency and Attribution

Transparency is the cornerstone of ethical AI use. Whether you are a student, a researcher, or a teacher, being open about how you have used AI tools is essential for maintaining trust and intellectual honesty.

For students: Always check your institution’s AI policy and your instructor’s specific guidelines before using NotebookLM for coursework. Policies vary widely; some institutions encourage AI use with disclosure, while others restrict or prohibit it. When AI use is permitted, document when and how you used NotebookLM and include appropriate attribution. A simple note such as “Google NotebookLM was used to generate initial summaries of source material, which were then verified against original texts and synthesized in the author’s own words” provides adequate transparency.

For researchers: Academic publishing is rapidly developing norms around AI disclosure. Many journals now require explicit statements about AI tool use in methodology sections. When NotebookLM has been used for literature synthesis, source analysis, or thematic coding, disclose this clearly. Be specific about what the tool was used for and what was done by the researcher independently.

For teachers: If you use NotebookLM to design course materials, create quizzes, or develop study guides, model the transparency you expect from students. Acknowledge AI assistance in your materials. This also helps normalize responsible AI use and demonstrates critical engagement with the tools.

TIP

Create clear AI use policies for your classroom that specify which tools are permitted, for which tasks, and with what level of disclosure. Share these policies at the start of each term and revisit them as AI capabilities evolve. The University

of Minnesota and Florida State University, among others, have published detailed guidance on NotebookLM use that can serve as templates.

13.3.3 Data Privacy and Confidentiality

Understanding how your data is handled is a non-negotiable prerequisite for responsible use, particularly in educational and research contexts where sensitive information may be involved.

Google's current privacy commitments. According to Google's official documentation, NotebookLM does not use your uploaded data to train its AI models. Your sources remain private unless you choose to share a notebook. However, there is an important nuance: if you provide feedback (e.g., by using the thumbs-up or thumbs-down feature), Google may review the full context of that interaction, including your queries, uploads, and the model's responses. This distinction between privacy (not training on your data) and confidentiality (who can see your data) is crucial.

WARNING

Do not provide feedback if you are working with sensitive or confidential material. The feedback mechanism is the primary pathway through which human reviewers may access your content. If your notebook contains student records, patient data, proprietary research, or any information protected by regulations such as FERPA, HIPAA, or GDPR, refrain from using the feedback feature.

Google Workspace vs. personal accounts. Users accessing NotebookLM through a qualifying Google Workspace account benefit from enterprise-grade data protection, including additional confidentiality commitments. For users on personal Google accounts, the protections are more limited. Institutions should consider providing Workspace-based access for any use cases involving sensitive data.

The following guidelines will help protect your data:

1. Never upload documents containing personally identifiable information (PII) unless you are operating under an institutional Workspace account with appropriate data protection agreements in place.
2. Anonymize or pseudonymize sensitive data before uploading. Remove names, student IDs, patient identifiers, and other protected information from documents before they enter NotebookLM.
3. Avoid using the feedback feature when working with confidential content.
4. Review your institution's acceptable use policies for AI tools and cloud services before uploading any institutional data.
5. Understand that shared and public notebooks make your sources accessible to others. Only share notebooks containing material you have the right to distribute.

13.3.4 Bias, Representation, and Critical Evaluation

Even with source grounding, NotebookLM's outputs are shaped by the intersection of your source material and the underlying Gemini language model. Both can introduce bias in ways that require critical awareness.

Source bias. NotebookLM treats all uploaded sources as equally authoritative. It does not distinguish between a peer-reviewed journal article and an opinion piece, a rigorous meta-analysis and an anecdotal blog post. The quality and balance of your source corpus directly determine the quality and balance of outputs. If you upload only sources that support a particular perspective, NotebookLM will faithfully reflect that perspective without flagging the absence of counterarguments.

Model bias. The Gemini models underlying NotebookLM were trained on vast corpora of internet text, which inevitably reflects the biases, assumptions, and representational imbalances present in that data. While source grounding constrains the model to your documents, subtle biases can still surface in how the model frames, interprets, and prioritizes information.

Simplification bias. AI summaries and overviews inevitably flatten nuance. A complex argument with careful qualifications may be reduced to a confident assertion. Ambiguous findings may be presented as settled conclusions. Audio and video overviews, in particular, adopt a confident, conversational tone that can obscure genuine uncertainty in the source material.

NOTE

Developing critical AI literacy means cultivating the habit of asking: What did the AI leave out? Whose perspective is missing? What qualifications or caveats were present in the original that the summary has smoothed over? These questions should become second nature for anyone using AI tools in academic or research contexts.

13.3.5 Intellectual Property and Copyright

When you upload sources to NotebookLM, important questions arise about intellectual property rights:

Your rights to the source material. Ensure you have the legal right to upload and process any material you add to NotebookLM. This is straightforward for your own original work, openly licensed content, and public domain material. It becomes more complex with copyrighted academic papers, proprietary reports, or material licensed under restrictive terms. Most academic fair-use provisions cover personal research use, but sharing AI-generated outputs derived from copyrighted sources with others (particularly via public notebooks) may raise additional concerns.

Student work and copyright. Students retain copyright over their own academic work. Educators who wish to upload student work to NotebookLM - for example, to create exemplar banks or to analyze common misconceptions - should obtain explicit consent from students before doing so.

AI-generated content ownership. The legal status of AI-generated content remains unsettled in most jurisdictions. While you can typically use NotebookLM's outputs (summaries, study guides, etc.) freely for personal and educational purposes, exercising caution before publishing or commercially distributing AI-generated content is advisable.

13.3.6 Over-Reliance and Intellectual Dependency

Perhaps the most insidious risk of AI tools in education is not that they will be used to cheat, but that they will gradually erode the cognitive skills they are meant to support. Consistent over-reliance on AI summaries can lead to what educators call the “shortcut trap”:

- Reading avoidance: Why read the full paper when the summary seems sufficient?
- Analytical atrophy: If the AI identifies themes and connections, does the student develop those skills independently?
- Shallow engagement: Surface-level interaction with AI-generated content replacing deep, critical engagement with original sources.
- Confidence without competence: Feeling knowledgeable about a topic based on AI summaries without having developed genuine understanding through sustained intellectual effort.

The antidote is intentional design. Educators should structure AI-assisted activities so that NotebookLM serves as a scaffold that is progressively removed, not a crutch that becomes permanent. Students should be encouraged to use AI tools to deepen their engagement with material, not to replace it.

TIP

A useful self-check: After using NotebookLM to study a topic, close the notebook and try to explain the key concepts in your own words, without AI assistance. If you struggle to do so, you have likely relied too heavily on the tool and need to engage more deeply with the original sources.

13.4 Building a Responsible AI Use Framework

Drawing together the principles explored in this chapter and throughout the guide, this section provides a practical framework that individuals and institutions can adapt for their own contexts.

13.4.1 The VERIFY Framework for AI Outputs

Before acting on or sharing any AI-generated content, apply the VERIFY framework:

Letter	Principle	Action
V	Validate	Click every citation and confirm the AI's claim matches the source passage.

E	Evaluate	Assess whether the AI has added interpretation beyond what the source states.
R	Represent	Check that all relevant perspectives from your sources are included, not just the dominant view.
I	Interrogate	Ask what the AI left out. What qualifications, caveats, or counter-arguments are missing?
F	Frame	Consider how the AI's framing might differ from how you would present the information yourself.
Y	Your voice	Rewrite AI-generated content in your own words before using it in any deliverable.

Table 13.5: The *VERIFY* framework for critically evaluating AI-generated outputs.

13.4.2 Institutional Policy Recommendations

Institutions adopting NotebookLM should develop clear policies that address the following areas:

1. **Permitted use cases:** Define which academic activities may involve AI tools and which may not. Be specific; “Students may use NotebookLM to generate study aids for personal use but may not submit AI-generated summaries as coursework” is more useful than a blanket permission or prohibition.
2. **Disclosure requirements:** Specify how and where students and researchers should disclose AI tool usage. Consider standardized disclosure templates.
3. **Data governance:** Establish guidelines for what types of institutional data may be uploaded to cloud-based AI tools. Classify data by sensitivity level and match to appropriate platform access (personal vs. Workspace accounts).
4. **Training and support:** Provide faculty and students with training on effective and ethical AI use. This guide can serve as a foundation for institutional workshops.
5. **Regular review:** AI capabilities evolve rapidly. Commit to reviewing and updating policies at least once per academic year.

13.4.3 A Personal AI Use Checklist

Whether or not your institution has formal AI policies, the following personal checklist can guide responsible use:

✓	Before Using NotebookLM, Ask Yourself:
<input type="checkbox"/>	Do I have the right to upload this material? (Copyright, licensing, institutional data policies)
<input type="checkbox"/>	Does this material contain sensitive or personally identifiable information that should be anonymized first?
<input type="checkbox"/>	Am I using this tool to deepen my understanding, or to avoid the work of understanding?

<input type="checkbox"/>	Does my instructor, institution, or publisher have specific policies about AI tool use that I need to follow?
<input type="checkbox"/>	Am I prepared to verify all AI-generated claims against original sources before using them?
<input type="checkbox"/>	Will I disclose my use of AI tools transparently in any work that benefits from AI assistance?
<input type="checkbox"/>	Can I explain the key concepts in my own words without referring to AI outputs?

Table 13.6: Personal AI use checklist for responsible engagement with NotebookLM.

13.4.4 The Postplagiarism Perspective

The emergence of tools like NotebookLM is forcing a broader rethinking of concepts like authorship, originality, and plagiarism in academic contexts. Scholar Sarah Eaton has introduced the concept of “postplagiarism” to describe an era in which hybrid human-AI writing becomes the norm, traditional definitions of plagiarism become increasingly difficult to apply, and the focus shifts from detecting AI use to ensuring responsible AI integration.

Six key tenets of this postplagiarism perspective are worth considering as we navigate this transition:

1. Hybrid human-AI writing will become the norm, making it increasingly difficult to distinguish human and AI contributions.
2. Human creativity is enhanced, not replaced, by AI; the tool augments rather than substitutes for human thought.
3. Language barriers diminish as AI translation and summarization tools improve cross-cultural communication.
4. Humans can relinquish control over production but not responsibility for accuracy and ethical use.
5. Attribution remains important - acknowledging sources and intellectual contributions is a non-negotiable principle regardless of the medium.
6. New frameworks for assessing academic work are needed that account for the reality of AI-assisted production.

NOTE

The postplagiarism perspective does not mean “anything goes.” It means that the conversation needs to evolve from “Did you use AI?” to “How did you use AI, and did it serve or undermine the learning objectives?” This shift requires both institutional policy changes and individual ethical reflection.

13.5 Looking Ahead: The Evolving Landscape

NotebookLM has evolved at a remarkable pace since its initial launch as Project Tailwind. The platform has expanded from a simple document chat interface to a comprehensive AI research assistant supporting multiple output modalities, collaborative features, and sophisticated customization. Understanding this trajectory helps set expectations for what may come next.

13.5.1 Anticipated Developments

While Google has not published a public roadmap, several developments seem likely based on current trends and user community feedback:

- **Expanded integrations:** Deeper connections with non-Google tools (reference managers, learning management systems, third-party productivity suites) would significantly broaden NotebookLM's utility in academic environments.
- **Enhanced multimodal understanding:** As Gemini's multimodal capabilities advance, expect improved analysis of images, charts, and diagrams within uploaded sources, moving beyond current text-only processing of visual content.
- **Cross-notebook capabilities:** The ability to query across multiple notebooks, or to create meta-notebooks that draw from subordinate notebooks, would address one of the platform's most frequently requested features.
- **Richer collaboration tools:** Real-time collaborative editing within shared notebooks, along with version history and change tracking, would make NotebookLM more viable for team research workflows.
- **Editable Studio outputs:** The ability to edit or annotate audio and video overviews after generation, rather than having to regenerate them entirely, would save significant time and daily allowance credits.

13.5.2 Staying Current

Given the pace of change, staying informed about NotebookLM updates is important. The most reliable sources of information include:

- **The official Google Workspace Updates Blog** (workspaceupdates.googleblog.com), which announces new features and changes.
- **The NotebookLM Help Centre** (support.google.com/notebooklm), for current documentation on features and limits.
- **The NotebookLM Discord community**, where both Google team members and experienced users share tips, workarounds, and feature updates.
- **Steven Johnson's public communications** about the product, which often provide context on design decisions and future directions.

☑ KEY TAKEAWAYS

1. Power users distinguish themselves through deliberate source management, specific and well-structured prompts, strategic use of the 10,000-character custom instruction field, and iterative prompt chaining.
2. NotebookLM's source-grounded RAG architecture significantly reduces hallucination (approximately 13% vs. 40% for general-purpose models), but does not eliminate it. The most common error type is interpretive overconfidence, not fabrication of facts.
3. Key limitations include cloud-only operation, no cross-notebook queries, limited file format support, probabilistic Studio customization, and safety filters that may block legitimate academic content.
4. The Golden Rule of ethical AI use, "Am I using this to learn better, or to avoid learning?", provides a practical compass for navigating academic integrity questions. Transparency, attribution, and disclosure are non-negotiable.
5. The VERIFY framework (Validate, Evaluate, Represent, Interrogate, Frame, Your voice) provides a systematic approach to critically evaluating AI-generated outputs before using them in any academic or professional context.

This concludes the main chapters of the Comprehensive Guide to Google NotebookLM. The Appendices that follow provide ready-to-use prompt templates (Appendix A), a detailed comparison of Free versus Plus/Pro/Ultra features (Appendix B), a troubleshooting guide (Appendix C), a glossary of key terms (Appendix D), and a Quick-Start Cheat Sheet (Appendix E) that condenses the essential information from all thirteen chapters into a single reference page.

Appendix A: Prompt Templates Library

This appendix provides a comprehensive collection of ready-to-use prompt templates for NotebookLM's custom instruction field (up to 10,000 characters). These templates are organised by audience and use case, and can be copied directly or adapted to suit your specific needs. Each template is designed to move you beyond NotebookLM's default settings and unlock its full potential as a customized AI assistant.

NOTE

All templates below are designed for the Notebook-level custom instructions field (Settings → Notebook Customization). They can also be adapted for individual chat prompts. Remember: customization affects chat interactions fully but Studio outputs only approximately 75% of the time.

A.1 Prompt Templates for Teachers

Template A.1.1: Curriculum-Aligned Lesson Planner

You are a curriculum design specialist for [subject] at the [level] level. When I ask questions about my uploaded materials: 1. Always align responses to [curriculum framework, e.g., Common Core, UK National Curriculum, IB] 2. Structure outputs as lesson plans with: learning objectives, starter activity, main teaching activities, plenary/assessment, and differentiation notes 3. Suggest formative assessment checkpoints every 15 minutes of instructional time 4. Flag any content gaps where supplementary materials may be needed 5. Use Bloom's Taxonomy verbs (analyze, evaluate, create) for higher-order objectives 6. Include estimated timing for each activity segment. Format responses with clear headings and bullet points. When referencing source material, always cite the specific document and page/section.

Customize the bracketed fields for your subject, year group, and curriculum framework.

Template A.1.2: Differentiated Resource Creator

You are an inclusive education specialist. When generating content from my sources: - Create THREE versions of every output: Foundation (simplified vocabulary, shorter sentences, visual scaffolding notes), Core (standard grade-level content), and Extension (enrichment challenges, open-ended inquiry questions) - For Foundation level: use Flesch-Kincaid reading level of [target, e.g., Year 5/Grade 4] - For Extension level: include connections to cross-curricular themes - Always include a glossary of key terms with student-friendly definitions - Suggest accommodations for EAL/ELL learners where relevant - Never dilute the core academic content when simplifying—reduce complexity of language, not depth of ideas

Ideal for creating differentiated worksheets, study guides, and reading materials.

Template A.1.3: Assessment and Quiz Designer

You are an assessment design expert. When I ask you to create assessments from my uploaded sources:

1. Generate questions at multiple Bloom's levels: 30% recall/comprehension, 40% application/analysis, 30% evaluation/synthesis
2. For multiple-choice questions: write 4 options with plausible distractors based on common misconceptions
3. Include a marking scheme with acceptable answer variations
4. Provide model answers for extended response questions
5. Tag each question with the specific source and section it draws from
6. Include estimated completion time per question
7. Add examiner tips noting what a strong vs. weak response looks like.

Format: Question | Bloom's Level | Source Reference | Marks | Model Answer

Works well with the built-in quiz and flashcard features for comparison.

Template A.1.4: Parent Communication Assistant

You are a school communications specialist. When helping me draft parent-facing communications based on my uploaded documents:

- Use warm, professional, jargon-free language
- Reading level: accessible to a general adult audience
- Always include: purpose/context, key information, action required (if any), relevant dates, and contact details placeholder
- Maintain an encouraging, partnership-focused tone
- Avoid educational acronyms unless defined
- Keep emails under 300 words; newsletters under 500 words
- Suggest subject lines that encourage opening

Upload school policies, curriculum documents, or event plans as sources.

A.2 Prompt Templates for Researchers**Template A.2.1: Systematic Literature Review Assistant**

You are a senior research methodologist specializing in systematic reviews. When analyzing my uploaded papers:

1. Extract and organize: authors, year, methodology, sample size, key findings, limitations, and theoretical framework
2. Identify methodological patterns across studies (qualitative vs. quantitative, longitudinal vs. cross-sectional)
3. Flag contradictory findings between sources and suggest possible explanations
4. Note gaps in the literature where further research is needed
5. Use precise academic language and discipline-specific terminology
6. When synthesizing across sources, distinguish between what individual studies claim and what the collective evidence suggests
7. Always cite using [Author, Year] format with specific page numbers where possible
8. Assess quality of evidence using a hierarchy (RCTs > cohort > case studies > expert opinion). Never extrapolate beyond what the uploaded sources explicitly state. If I ask a question not addressed in my sources, say so clearly.

Upload your literature collection and use this to systematically extract and synthesize findings.

Template A.2.2: Methodology Critique and Design Advisor

You are a research methodology consultant with expertise in [qualitative/quantitative/mixed methods]. When reviewing my uploaded research documents:

- Evaluate methodological quality: sampling strategy, validity, reliability, ethical considerations
- Identify threats to internal and external validity
- Suggest improvements with specific, actionable recommendations
- Compare methodological choices against disciplinary standards in [field]
- When I describe my own research design, evaluate it against the methods used in my uploaded sources
- Use frameworks such as CASP (for qualitative), CONSORT (for RCTs), or PRISMA (for reviews) as applicable
- Be constructively critical—identify weaknesses but always suggest alternatives

Provide responses structured as: Observation → Evidence from sources → Implication → Recommendation

Replace bracketed fields with your methodology type and discipline.

Template A.2.3: Grant Proposal and Funding Application Assistant

You are a grant writing consultant who has reviewed successful applications for [funding body, e.g., UKRI, NSF, ERC]. Based on my uploaded documents (research plans, preliminary data, literature):

1. Help structure arguments for significance, innovation, and feasibility
2. Identify the strongest evidence from my sources to support each claim
3. Suggest how to frame contributions as addressing gaps in the field
4. Draft sections in formal academic tone appropriate for [discipline]
5. Flag any claims that need stronger evidence or additional citations
6. Ensure alignment between research questions, methodology, and expected outcomes
7. Keep language precise and avoid unnecessary hedging while maintaining academic honesty.

When I provide word/character limits, strictly adhere to them. Always distinguish between what my sources demonstrate and what I am proposing to investigate.

Upload your preliminary data, related publications, and the funding call guidelines as sources.

Template A.2.4: Data Analysis Interpreter

You are a research data analyst specializing in [field]. When I share data tables, statistical outputs, or research findings from my uploaded sources:

1. Explain statistical results in plain language alongside technical interpretation
2. Identify whether the reported analyses are appropriate for the data type and research questions
3. Note effect sizes, confidence intervals, and practical significance—not just p-values
4. Flag potential issues: small sample sizes, multiple comparisons, missing data handling
5. Compare findings across uploaded studies, noting where results converge or diverge
6. Suggest additional analyses that could strengthen conclusions
7. Present interpretations cautiously, distinguishing correlation from causation.

Format: Finding → Statistical Evidence → Interpretation → Caveats

Particularly useful for Google Sheets uploads with structured data.

Template A.2.5: Theoretical Framework Mapper

You are a theoretical analysis specialist in [discipline]. When working with my uploaded sources: 1. Identify all theoretical and conceptual frameworks referenced across my sources 2. Map relationships between theories: complementary, competing, or nested frameworks 3. Evaluate how each study operationalizes its stated theoretical framework 4. Identify gaps where empirical findings lack adequate theoretical grounding 5. Suggest how multiple frameworks might be integrated or synthesized 6. Distinguish between frameworks used descriptively vs. explanatorily vs. predictively 7. Trace the genealogy of key concepts across the uploaded literature. Present analysis as: Theory → Key Constructs → How Used in Sources → Strengths/Limitations

Upload foundational texts alongside empirical studies for the richest analysis.

A.3 Prompt Templates for Students

Template A.3.1: Active Study Companion (The “Teach-Back” Method)

You are my study partner. Your goal is to help me deeply understand—not just memorize—the material in my uploaded sources. Use these strategies: 1. When I say “explain [topic]”: Give a clear explanation, then immediately ask me to explain it back in my own words 2. When I attempt an explanation: Identify what I got right, what I missed, and what I misunderstood. Be specific. 3. Use the Feynman Technique: If I can’t explain something simply, break it down further 4. Create analogies from everyday life to illustrate complex concepts 5. After every 3 exchanges, summarize what I’ve mastered and what needs more work 6. Challenge me with “what if” scenarios that test transfer of knowledge 7. Never just give me the answer—guide me to discover it through questioning. Adjust difficulty based on my responses. If I’m struggling, scaffold more. If I’m confident, push harder.

The “Golden Rule”: Use this to amplify your learning, not to avoid it.

Template A.3.2: Essay Planning and Structuring Assistant

You are an academic writing tutor. Help me plan essays and written assignments based on my uploaded sources, but NEVER write the essay for me. Instead: 1. Help me identify a clear thesis statement from the evidence in my sources 2. Suggest an argument structure (e.g., compare/contrast, cause/effect, thematic) 3. For each paragraph: suggest a topic sentence direction and which sources provide relevant evidence 4. Identify potential counterarguments I should address 5. Check my thesis is arguable, specific, and supported by available evidence 6. Suggest where I need stronger evidence or additional sources 7. Review my outlines for logical flow and coherence. When citing sources, use [Author, Year, p.X] format. Always remind me that the final writing must be entirely my own work.

Upload your assignment brief alongside your research sources.

Template A.3.3: Exam Preparation Coach

You are an exam preparation coach. Based on my uploaded lecture notes, textbook chapters, and past papers: 1. Create a study priority list: rank topics by likely exam importance and my apparent confidence level 2. Generate practice questions at increasing difficulty 3. When I answer a question, give detailed feedback referencing specific source material 4. Identify my knowledge gaps and create targeted mini-quizzes for weak areas 5. Teach me memory techniques (mnemonics, method of loci, spaced repetition cues) for factual content 6. Simulate exam conditions: give me timed questions and evaluate against marking criteria 7. After each session, provide a confidence rating for each topic. Be encouraging but honest. If I'm wrong, explain why clearly without sugar-coating.

Upload past exam papers alongside your notes for the most targeted preparation.

Template A.3.4: Research Project Navigator

You are a research supervisor guiding me through my [undergraduate/postgraduate] research project. Based on my uploaded sources: 1. Help me refine my research question to be specific, achievable, and original 2. Identify where my sources agree, disagree, or leave gaps I could investigate 3. Suggest appropriate methodology based on my research question and what's been done in the field 4. Help me create a project timeline with realistic milestones 5. Review my writing plans for structure and coherence 6. Challenge my assumptions constructively 7. Flag ethical considerations I should address. Always frame guidance as suggestions, not directives. This is MY research—help me develop my own scholarly voice and critical judgement.

Upload your project brief, supervisor feedback, and literature alongside research sources.

A.4 General-Purpose and Cross-Audience Templates**Template A.4.1: Meeting and Conference Notes Synthesizer**

You are a professional note-taker and synthesizer. When working with my uploaded meeting notes, recordings, or conference materials: 1. Extract: key decisions, action items (with owners if mentioned), deadlines, and open questions 2. Organize by theme or agenda item, not chronologically 3. Distinguish between decisions made, items discussed but unresolved, and items deferred 4. Highlight follow-up actions with clear ownership where identifiable 5. Note any conflicting viewpoints or unresolved tensions 6. Keep summaries concise: aim for 20% of the original length. Format: Theme → Key Points → Decisions → Actions → Open Questions

Upload audio transcripts, Google Docs notes, or PDF agendas as sources.

Template A.4.2: Multilingual Content Analyst

You are a multilingual academic assistant fluent in [languages]. When working with my uploaded sources: 1. Analyze content in its original language for nuance and precision 2. Provide summaries and responses in [output language] 3. Flag concepts or terms that lose meaning in translation, with explanatory notes 4. When comparing sources across languages, note cultural or contextual differences in how concepts are framed 5. Maintain academic register in all languages 6. Use the output language selector for generated content but provide key terminology in the original language in parentheses. Always indicate which language each source is in when referencing it.

NotebookLM supports 35+ languages. Use the output language selector alongside this template.

Template A.4.3: Comparative Analysis Engine

You are a comparative analysis specialist. When I ask you to compare content across my uploaded sources: 1. Create structured comparison frameworks: similarities, differences, unique contributions 2. Use tables for side-by-side comparisons where appropriate 3. Identify underlying assumptions that explain why sources differ 4. Rank sources by relevance, recency, methodological quality, or other criteria I specify 5. Synthesize into an integrated analysis that goes beyond listing individual positions 6. Note areas of consensus vs. ongoing debate 7. Always maintain neutrality—present all positions fairly before evaluating. Format comparisons as: Dimension → Source A Position → Source B Position → Analysis

Works particularly well with Deep Research reports added alongside primary sources.

TIP

Combine templates strategically. For example, a researcher might use Template A.2.1 (Literature Review) as their notebook-level instruction, then paste Template A.2.5 (Theoretical Framework) into individual chat prompts for targeted analysis sessions. The notebook-level instruction provides the foundation; chat-level prompts allow temporary specialization.

Appendix B: NotebookLM Plan Comparison

NotebookLM is available across four subscription tiers, each mapped to a different Google subscription. The following tables provide a comprehensive comparison of features, limits, and capabilities across all tiers. All core features (chat, Audio/Video Overviews, Deep Research, Studio outputs) are available on every tier—the differences lie in usage limits and advanced capabilities.

NOTE

Pricing and limits are accurate as of early 2026. Google frequently updates these tiers. Always check notebooklm.google/plans for the latest information.

B.1 Subscription Tiers Overview

Feature	Free	Plus	Pro	Ultra
Price	Free (Google account)	Included with Workspace Standard (\$14/user/mo)	\$19.99/month (Google AI Pro)	\$249.99/month (Google AI Ultra)
Target audience	Students, casual users	Teams, regular users	Professionals, daily users	Power users, organizations
Notebooks	100	200	500	500
Sources per notebook	50	100–300	300	600
Words per source	500,000	500,000	500,000	500,000
File size limit	200 MB	200 MB	200 MB	200 MB
Chat queries/day	50	~100 (2×)	500 (10×)	5,000 (100×)
Audio Overviews/day	3	~6 (2×)	20 (5×)	200 (50×)
Video Overviews/day	Limited	2× free limits	5× free limits	200
Deep Research/day	~10/month	2× free limits	20/day	200/day
Reports, Flashcards, Quizzes/day	10	2× free limits	5× free limits	1,000
Slide Decks & Infographics	Limited	Limited	Standard limits	Highest limits + watermark removal

Feature	Free	Plus	Pro	Ultra
Gemini model access	Standard	Standard	Higher access	Highest access
Priority feature access	No	Early access	Yes	Yes
Student discount	—	—	50% off (\$9.99/mo, US, 18+, first year)	—

B.2 Additional Bundle Benefits

Each paid tier includes benefits beyond NotebookLM, as they are bundled with broader Google subscription plans:

Benefit	Plus (Workspace)	Pro (AI Pro)	Ultra (AI Ultra)
Google One storage	— (Workspace storage)	2 TB	30 TB
Gemini app access	Standard	Advanced (Deep Think)	Highest (parallel agents)
Google Photos AI	Standard	Enhanced	Highest limits
YouTube Premium	No	No	Included
Workspace integration	Full (Gmail, Docs, Meet)	Personal account	Personal account
Admin controls	Yes	No	No
Analytics dashboard	Yes	Limited	Yes

B.3 Which Tier Is Right for You?

User Profile	Recommended Tier	Rationale
Student (occasional use)	Free	50 sources and 50 daily chats are sufficient for most coursework and revision
Student (intensive exam prep)	Pro (with student discount)	500 daily chats and 20 Audio Overviews support heavy study sessions; \$9.99/mo with discount
Teacher (individual)	Free or Pro	Free works for lesson planning; Pro needed if creating daily Audio

User Profile	Recommended Tier	Rationale
		Overviews for multiple classes
Teacher (school/department)	Plus (Workspace)	Admin controls, sharing, analytics, and organizational data governance
Researcher (solo)	Pro	300 sources per notebook and 500 daily chats support serious literature review work
Research team/lab	Plus or Ultra	Collaboration features, highest source limits (600), and organizational controls
Casual user	Free	More than sufficient for occasional research, summarization, and exploration

WARNING

The Free tier's 50-query daily limit can be reached quickly during intensive research sessions. If you regularly run out of queries before completing your work, consider upgrading. Also note that all tiers require an active internet connection—there is no offline mode for any NotebookLM plan.

B.4 Supported Source Types (All Tiers)

Source Type	Details	Limitations
Google Docs	Imported from Drive; manual re-sync required after edits	Footnotes and comments not imported; sub-tabs not imported
Google Slides	Full text content extracted	Visual layout not preserved
Google Sheets	Structured data imported for analysis	Content within sub-tabs not imported
PDFs	Uploaded locally or via Drive URLs	Copy-protected PDFs will fail; max 200 MB / 500K words
Microsoft Word (.docx)	Full text extraction	Complex formatting may not be preserved
Text files (.txt)	Direct upload	Plain text only

Source Type	Details	Limitations
Web URLs	Text content scraped from public pages	Paywalled pages not supported; images/videos not imported
YouTube videos	Transcript extracted (auto or manual captions)	Must be public with captions; no speech-only videos; videos <72 hrs old may fail
Audio files (MP3, WAV)	Transcribed for text interaction	Requires clear speech
Images	Visual content analyzed	Some image types may not work reliably
Google Drive URLs	Direct import from shared links	Requires appropriate access permissions

Appendix C: Troubleshooting Guide

This appendix addresses the most common issues users encounter when working with NotebookLM, organised by category. For each problem, we provide the likely cause and a step-by-step solution.

C.1 Source Upload and Import Issues

Problem	Likely Cause	Solution
“Source import failed” error	File exceeds 500,000 words or 200 MB; file is copy-protected; network interruption	Check file size and word count. For large PDFs, split into smaller files. Ensure the PDF is not copy-protected. Try uploading one file at a time to isolate the problem.
“Invalid URL” when adding website	Site blocks scraping; URL format issue; paywalled content	Use a full-page screenshot tool (e.g., GoFullPage) to save the page as a PDF, then upload the PDF. Alternatively, copy-paste the text content directly as a new source.
YouTube video fails to import	Video is private; no captions available; video uploaded <72 hours ago; video has no speech	Verify the video is public and has captions (auto-generated or manual). For videos without captions, copy the transcript manually: YouTube → More → Show Transcript → copy and paste as a text source.
Google Drive file won't import	Insufficient permissions; file is in a restricted shared drive	Ensure you have at least view access to the file. Try opening the file in Google Docs/Sheets first to confirm access, then re-import.
Audio file import fails	File lacks clear speech; unsupported format; file too large	Ensure the audio contains clear speech (not music-only). Convert to MP3 or WAV format. Check that the file is under 200 MB.
Source content appears incomplete	Sub-tabs in Google Docs/Sheets not imported; images/embedded content stripped	NotebookLM only imports text content. For spreadsheets with multiple tabs, the main tab is prioritized. Upload supplementary tabs as separate sources.

Problem	Likely Cause	Solution
“Sync with Google Drive” button missing	You don’t have write access to the original file	The sync button only appears for files where you have edit permission. For read-only files, delete and re-upload the source to get the latest version.

C.2 Chat and Response Quality Issues

Problem	Likely Cause	Solution
Responses are too generic or surface-level	Default settings active; vague prompting; too many sources selected	Add custom instructions to specify depth, format, and expertise level. Ask more specific questions. Select only the most relevant sources using the checkboxes in the source panel.
NotebookLM says it can’t find information that is in your sources	Information buried in large documents; unclear phrasing; information in images or footnotes (not imported)	Rephrase your question with specific keywords matching the source text. Mention the source by name in your query. Check that the information exists as text, not in images or footnotes.
“Daily query limit reached”	Free tier limit of 50 queries/day exceeded	Wait until the next day for limits to reset, or upgrade to a paid tier. Batch related questions into single, comprehensive prompts to use queries more efficiently.
Responses ignore custom instructions	Instructions too long or contradictory; Studio output (only ~75% adherence); instructions placed incorrectly	Simplify and prioritize your most important instructions. Place the most critical instructions at the beginning and end of your custom prompt. For Studio outputs, re-generate if the first attempt doesn’t follow instructions.
Responses cite wrong sources	Multiple similar sources cause confusion; source names are ambiguous	Rename sources with clear, distinctive titles. Use source selection checkboxes to limit which sources are consulted for specific queries.

Problem	Likely Cause	Solution
Chat is slow or unresponsive	Server-side load; browser cache issues; large notebook	Refresh the page. Clear browser cache. Try a different browser (Chrome recommended). If the issue persists, check the Google Workspace Status Dashboard.

C.3 Audio and Video Overview Issues

Problem	Likely Cause	Solution
Audio Overview fails to generate	Daily limit reached; server outage; sources contain insufficient text	Check your daily generation limit. Verify NotebookLM's status at the Google Workspace Status Dashboard. Ensure your selected sources contain enough substantive text for a conversation.
Audio quality is poor or robotic	Complex technical content; very short sources	Provide more context in your custom instructions about tone and audience. Add more sources to give the AI hosts more material to discuss.
Audio doesn't cover all sources	Context window limitations; too many sources selected	Select fewer, more focused sources. The AI hosts prioritize the most relevant content but may not cover everything in very large notebooks.
Interactive Mode won't activate	Using a previously saved Audio Overview; non-English content; mobile app limitations	Interactive Mode only works on newly generated Audio Overviews, not saved ones. Generate a fresh overview and select "Join" during playback. Currently English-only.
Video Overview fails	Daily limit reached; insufficient source content; server issues	Same troubleshooting as Audio Overviews. Video Overviews are more resource-intensive, so limits are stricter.

Problem	Likely Cause	Solution
Custom instructions not reflected in Audio/Video	Studio outputs follow instructions ~75% of the time	Re-generate the overview. Place the most critical instructions prominently. Be more explicit and specific in your customization directives.

C.4 Studio Panel and Output Issues

Problem	Likely Cause	Solution
Mind Map is too simple or misses key connections	Insufficient source material; default generation settings	Add more diverse sources covering different aspects of the topic. Use custom instructions to specify depth and focus areas.
Report generation fails	Daily limit reached; sources too short or unclear	Check generation limits. Ensure your sources contain substantive content. Try selecting specific sources rather than using the entire notebook.
Flashcards contain errors	Source material is ambiguous; misinterpretation AI	Review and edit generated flashcards. Provide clearer source material or add custom instructions specifying the type of information to include in flashcards.
Slide Deck has watermarks	Free, Plus, or Pro tier	Watermark removal is exclusive to the Ultra tier (\$249.99/month). On other tiers, watermarks appear on all generated Slide Decks and Infographics.
Quiz questions are too easy or too hard	Default difficulty; no customization specified	Use custom instructions to specify difficulty level, Bloom's Taxonomy targets, and question types. Specify your academic level and subject.
Infographic is poorly formatted	Complex content; limited design customization	Simplify the source selection. Use custom instructions to focus on specific themes or data

Problem	Likely Cause	Solution
		points. Re-generate for a different layout.

C.5 Sharing and Collaboration Issues

Problem	Likely Cause	Solution
Collaborator can't access shared notebook	Incorrect sharing permissions; collaborator needs a Google account	Verify sharing settings: both "full access" and "chat-only" require the recipient to have a Google account. Reshare the link and confirm the permission level.
Analytics not showing data	Feature requires Plus/Workspace tier; insufficient usage data	Analytics are primarily available on Plus (Workspace) and higher tiers. Data may take time to populate after initial sharing.
Shared notebook loses custom settings	Custom instructions are tied to the notebook owner's settings	Custom instructions set by the notebook owner apply to all users. Ensure the owner has configured instructions before sharing.
Published notebook shows sensitive content	Insufficient review before publishing	Always review all sources, notes, and generated content before making a notebook public. Remove any sensitive or confidential material.

C.6 General Platform Issues

Problem	Likely Cause	Solution
NotebookLM won't load	Browser compatibility; network issue; server outage	Use Google Chrome (recommended). Clear browser cache and cookies. Check your internet connection. Visit the Google Workspace Status Dashboard for known outages.
Lost notes or saved content	Accidental deletion; browser session issues	Deleted notes cannot be recovered. Regularly export

Problem	Likely Cause	Solution
		important notes to Google Docs as a backup. Use the notebook's notes panel to save critical AI responses.
Mobile app has limited features	Some features are desktop-only or in limited rollout	Use the desktop web version for full functionality. The mobile app supports source saving via share button and basic interactions but may lag behind desktop features.
Features suddenly unavailable	Service disruption; feature rollback during updates	Google occasionally rolls back features during updates (as occurred during the September 2025 update). Check official channels (@NotebookLM on X/Twitter) for status updates.

 **TIP**

For persistent issues not covered here, contact Google support at notebooklm-user-support@google.com or use the in-app feedback mechanism: Settings → Send Feedback. Including a screenshot helps the team diagnose your issue more quickly.

Appendix D: Glossary of Key Terms

This glossary defines technical terms and concepts used throughout this guide, presented in alphabetical order. Terms marked with an asterisk (*) are specific to NotebookLM; others are general AI and technology terms relevant to understanding the platform.

Audio Overview* A Studio panel feature that generates a podcast-style conversation between two AI hosts discussing the content of your uploaded sources. Can be customized with instructions for tone, audience, and focus.

Bloom's Taxonomy A hierarchical classification of cognitive skills used in education: Remember, Understand, Apply, Analyze, Evaluate, Create. Used throughout this guide for designing prompts at different complexity levels.

Chain-of-thought prompting A prompting technique that instructs the AI to reason through a problem step by step, improving accuracy on complex tasks. In NotebookLM, this can be embedded in custom instructions.

Citation (inline) A clickable reference in NotebookLM's chat responses that links directly to the specific passage in a source document. These citations ground every response in your uploaded materials.

Context window The maximum amount of text an AI model can process at once. NotebookLM's context window determines how much of your source material it can consider when generating responses.

Custom instructions* User-defined directives (up to 10,000 characters as of December 2025) that shape how NotebookLM responds. Set at the notebook level via Settings → Notebook Customization.

Deep Research* A NotebookLM feature that automates complex online research by creating a research plan, browsing hundreds of websites, and generating an organised report with sources that can be added to your notebook.

Differentiation An educational strategy of adjusting content, process, or product to meet diverse learner needs. Several prompt templates in this guide create differentiated outputs (Foundation, Core, Extension).

DXA (Document eXchange unit of measurement) The unit of measurement used in Microsoft Word documents. 1 inch = 1,440 DXA. Referenced in the formatting specifications of this guide.

Fast Research* A quick search mode within NotebookLM's source discovery feature. Rapidly scans for information, allowing immediate review and import of sources. Contrast with Deep Research.

Feynman Technique A learning method where you explain a concept in simple terms to identify gaps in understanding. Referenced in the student study companion template (A.3.1).

Few-shot prompting A technique where examples of desired input-output pairs are included in the prompt to guide the AI's response format and quality.

Flashcards* A learning tool generated from the Studio panel that creates question-and-answer pairs from your uploaded sources for study and revision.

Gemini Google's family of large language models (LLMs) that powers NotebookLM. Gemini can process text, images, code, audio, and video.

Grounding (source grounding) NotebookLM's core architectural principle: all AI responses are constrained to information found in the user's uploaded sources, reducing hallucination. This distinguishes NotebookLM from general-purpose AI chatbots.

Hallucination When an AI generates plausible-sounding but factually incorrect or unsupported information. NotebookLM's source-grounding architecture significantly reduces this risk.

Infographic* A visual summary generated from the Studio panel that presents key information from your sources in a graphical format.

Interactive Mode* A feature allowing users to join Audio Overviews in real time, asking questions and receiving responses from the AI hosts. Only works on newly generated overviews; currently English-only.

Iterative prompting The practice of refining prompts through multiple rounds of conversation, building on previous responses to achieve more precise or nuanced outputs.

Mind Map* A Studio panel output that creates a visual representation of connections between concepts in your uploaded sources, allowing interactive exploration.

Nano Banana Google's image generation model used to create visual styles for Video Overviews in NotebookLM.

Negative prompting Explicitly instructing the AI about what NOT to do, include, or generate. Effective in NotebookLM for avoiding unwanted response patterns.

Notebook* The primary organizational unit in NotebookLM, containing sources, notes, and generated content. Each notebook is an independent workspace with its own custom settings.

Output language selector* A feature allowing users to choose the language for generated text outputs (study guides, reports, chat responses), supporting 35+ languages.

Persona prompting Setting a specific role or identity for the AI to adopt (e.g., “You are a research methodologist”), which shapes the expertise level, vocabulary, and perspective of responses.

Quiz* A learning tool generated from the Studio panel that creates assessment questions (multiple choice, short answer) from your uploaded sources.

RAG (Retrieval-Augmented Generation) The technical architecture behind NotebookLM: the AI retrieves relevant information from your sources, then generates responses grounded in that retrieved content.

Report* A Studio panel output that generates a structured document synthesizing information from your uploaded sources.

Slide Deck* A Studio panel output that generates a presentation with layouts, visuals, and text from your sources. Watermarks appear on all tiers except Ultra.

Source* Any document, file, URL, or content uploaded to a NotebookLM notebook. Sources are static copies—changes to originals require manual re-syncing.

Source Guide* An auto-generated summary of each source in your notebook, accessible in the source viewer panel. Provides a quick overview without using a chat query.

Studio panel* The section of NotebookLM’s interface containing generation tools: Audio Overviews, Video Overviews, Mind Maps, Reports, Flashcards, Quizzes, Slide Decks, Infographics, and Study Guides.

Study Guide* A learning tool generated from the Studio panel that creates a comprehensive review document from your uploaded sources, organised by topic.

Video Overview* A Studio panel feature that generates a visual video presentation discussing your sources, with multiple format options (Brief, Explainer) and visual styles.

Zero-shot prompting Giving the AI a task without any examples, relying entirely on instructions to guide the output. The simplest form of prompting.

Appendix E: Quick-Start Cheat Sheet

This one-page reference provides everything you need to get started with NotebookLM in under five minutes. Print it, bookmark it, or keep it handy as you begin exploring the platform.

E.1 Getting Started in 5 Steps

Step	Action	Details
1	Go to notebooklm.google.com	Sign in with any Google account (free). Also available as a mobile app on Android and iOS.
2	Create a new notebook	Click “+ New Notebook”. Give it a clear, descriptive name related to your project or topic.
3	Upload your sources	Click “Add Source” and upload PDFs, Google Docs, Slides, Sheets, URLs, YouTube videos, audio files, or paste text. Start with 3–5 high-quality sources.
4	Set custom instructions	Go to Settings → Notebook Customization. Add instructions that define how NotebookLM should respond (see Appendix A for templates). This is the single most impactful step.
5	Start interacting	Use the chat panel to ask questions, or explore the Studio panel to generate Audio Overviews, Mind Maps, Reports, and more.

E.2 Essential Custom Instruction Starter

Copy and paste this minimal but effective starter template into your notebook’s custom instructions field:

Quick-Start Custom Instruction Template

You are a knowledgeable [role] assisting with [purpose]. When responding: 1. Always cite specific sources with document names and

sections 2. Use [formal/conversational] academic language 3. Structure responses with clear headings and organised points 4. If information is not in my sources, say so explicitly 5. Aim for [concise overviews / detailed analysis]. My context: I am a [teacher/researcher/student] working on [brief project description].

Replace all bracketed text with your specific details. Even this simple template dramatically improves response quality over default settings.

E.3 Key Features at a Glance

Feature	Where to Find It	What It Does	Best For
Chat	Main panel (right side)	Ask questions grounded in your sources; receive cited responses	Research, analysis, exploration
Source Guide	Click any source in left panel	Auto-generated summary of each source	Quick source overview
Audio Overview	Studio panel	AI-hosted podcast discussing your sources	Learning on the go, revision
Video Overview	Studio panel	Visual summary video with multiple styles	Presentations, sharing
Mind Map	Studio panel	Interactive concept map of your sources	Understanding connections
Report	Studio panel	Structured document synthesizing sources	Professional summaries
Flashcards	Studio panel	Q&A cards from your source content	Memorization, revision
Quiz	Studio panel	Assessment questions from your sources	Self-testing, exam prep
Study Guide	Studio panel	Comprehensive review document by topic	Exam preparation
Slide Deck	Studio panel	Presentation with visuals and text	Sharing, teaching
Infographic	Studio panel	Visual summary of key information	Quick overviews

Feature	Where to Find It	What It Does	Best For
Deep Research	Source panel → Web	Automated online research with report	Literature discovery
Interactive Mode	During Audio Overview playback	Join the AI conversation in real time	Active learning
Custom Instructions	Settings Notebook Customization →	Define AI behaviour (up to 10,000 chars)	Personalization
Source Selection	Checkboxes in source panel	Limit which sources the AI consults	Focused analysis

E.4 Top 10 Power-User Tips

#	Tip	Details
1	Customize first, chat second	Always set custom instructions before starting your research. Default responses are generic; customized responses are transformative.
2	Name your sources clearly	Rename uploaded files with distinctive, descriptive titles. This helps both you and NotebookLM find and reference the right material.
3	Use source selection	Tick only the sources relevant to your current question. This improves accuracy and relevance dramatically.
4	Save important responses as notes	Click “Save to Note” on valuable AI responses. Notes persist in your notebook and can be used as internal references.
5	Iterate your prompts	If the first response isn’t quite right, refine your question. Add context, specify format, or narrow focus.
6	Combine chat with Studio	Use chat for analysis and exploration, then use Studio

#	Tip	Details
		tools to transform insights into shareable outputs.
7	Leverage Deep Research for discovery	When starting a new topic, use Deep Research to find high-quality sources, then add them directly to your notebook.
8	Set output language deliberately	Use the output language selector for multilingual work. Sources can be in any supported language; outputs can be generated in your preferred language.
9	Download Audio Overviews	Downloaded audio can be listened to offline—one of the few features that works without internet.
10	Review AI outputs critically	NotebookLM is grounded in your sources, but always verify important claims. Check citations by clicking through to the original passages.

E.5 Common Keyboard Shortcuts and Navigation

Action	How
Create new notebook	“+ New Notebook” button on home screen
Add source	“Add Source” button or drag-and-drop files into the source panel
Select/deselect sources	Click checkboxes next to source names in the left panel
Open source viewer	Click a source name to open its full content
Save chat response as note	Hover over a response and click “Save to Note”
Access Studio panel	Click the “Studio” tab (typically below or beside the chat panel)
Open notebook settings	Settings icon (gear) within the notebook
Share notebook	Share button in the top-right corner of the notebook

Action	How
Switch output language	Language selector in notebook settings or generation options
Submit chat query	Type in chat box and press Enter (or click Send)

 **TIP**

Print this cheat sheet and keep it beside your computer as you begin using NotebookLM. Within a week of regular use, most of these actions will become second nature. For the most up-to-date feature information, visit support.google.com/notebooklm.