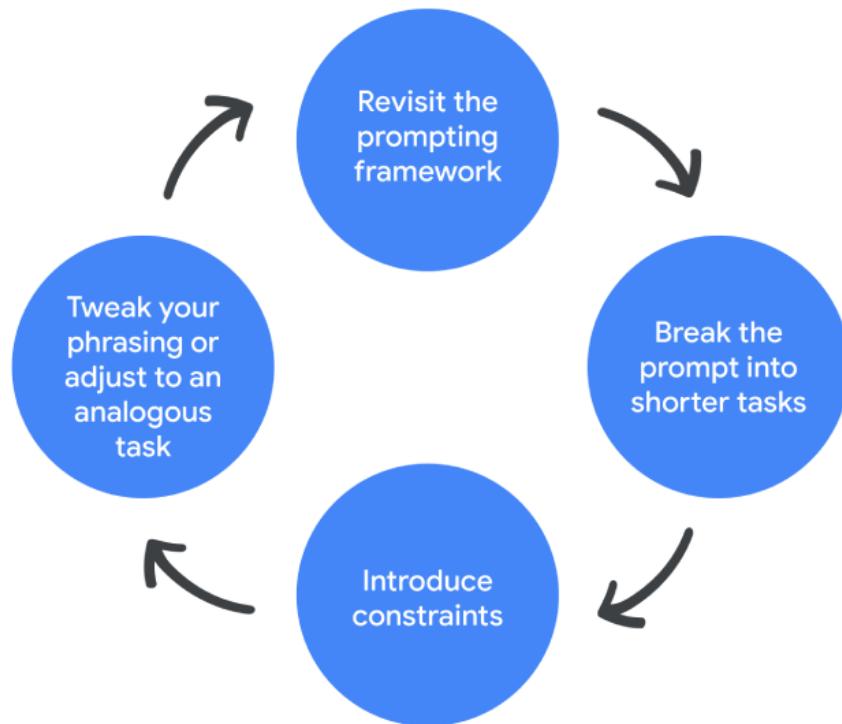


Welcome to Google Prompting Essentials



Take an iterative approach

There will be times when your prompt simply isn't leading to the output you need. That's where our **ABI** advice comes in: **Always Be Iterating**. If you find an output lacking, continue clarifying what you need until it's just right.



🧠 Multimodal Prompting: Key Notes

✓ What is Multimodal Prompting?

- Uses multiple input types (text, images, audio, etc.)

- Reflects how we communicate in real life (e.g., presentations use visuals + speech)
 - Helps gen AI better understand and generate rich, contextual responses
-

Benefits

- Enables clearer instructions
 - Results in more vivid and tailored outputs
 - *Example:* A sunset photo leads to a more visually accurate poem
 - Allows cross-media creativity
 - Text → Image, Audio → Text, etc.
-

Considerations / Limitations

- Not good at:
 - Abstract concepts
 - Combining many complex modalities
 - Basic logic (e.g., counting)
 - Requires tools that support specific modalities (text, image, audio, etc.)
-

Examples of Multimodal Prompts

1.  Recipe ideas from a photo of your fridge
 2.  Social media visual using two brand logos/colors
 3.  Story atmosphere inspired by forest audio
-

Using the Prompt Framework (T-C-R-E-I)

T – Task

- Define persona + format

- Be clear about how each modality should be used (and why)

C – Context

- Add background relevant to all included modalities
- Example: Only consider fruits/veggies in fridge photo, not packaged goods

R – References

- Include text, images, audio as examples
- Make sure your gen AI tool supports the reference type(s)

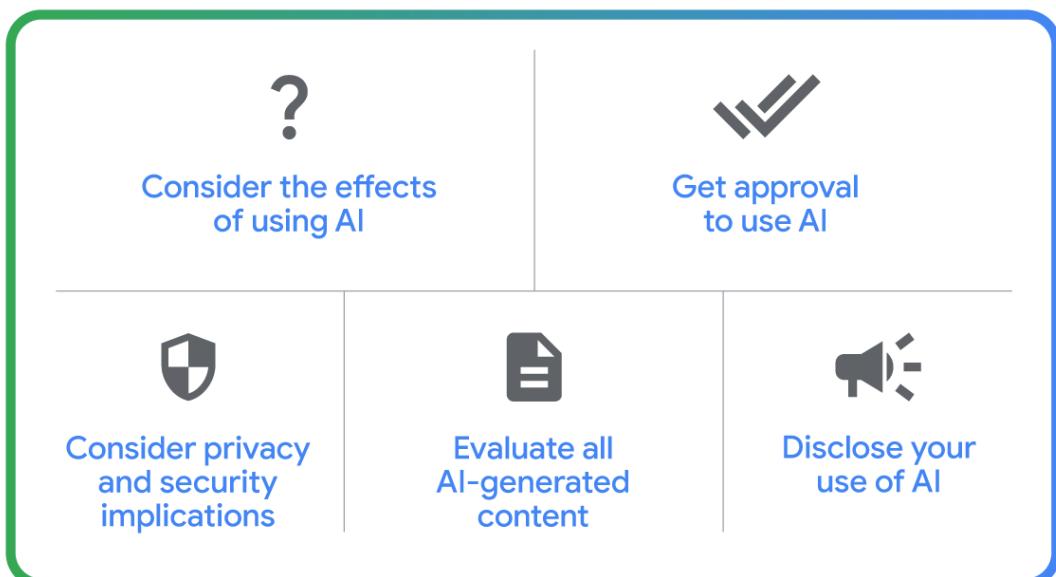
E – Evaluate

- Review output visually, aurally, or contextually
- Multimodal responses may require deeper analysis

I – Iterate

Use any of these 4 methods:

1. Revisit the full framework
2. Break prompt into smaller tasks
3. Add constraints
4. Rephrase or try a similar task



Responsible Prompting – Key Notes

Why It Matters

- Gen AI lacks **critical thinking, awareness, and judgment**
 - Outputs can include **bias, hallucinations, or irrelevant/inaccurate content**
 - Human-in-the-loop = essential
-

Ethical Risks & Limitations

1. Biases & Stereotypes

- Gen AI can reflect and reinforce societal biases (e.g., age, gender, race)
 - **To mitigate:**
 -  **Specify diversity** in prompts
e.g., “foods from around the world” instead of just “foods”
 -  **Challenge assumptions** in the output
If it's biased, point it out and ask for correction
-

2. Hallucinations (False Info)

- Gen AI might invent facts if prompts are vague or incorrect
 - **To avoid:**
 -  **Fact-check** using search engines or experts
 -  **Use precise and accurate inputs**
e.g., avoid leading questions like “Why is Toronto the capital of Canada?”
-

3. Inconsistencies & Misinterpretations

- Figurative language or idioms may confuse AI
- **To address:**

-  Provide **references** that represent your intended output
 -  Offer **clearer context or rephrase** input
e.g., say “use creative strategies” instead of “think outside the box”
-

Responsible Use at Work

Questions to consider before using AI for work tasks:

- Does the task align with your role/responsibilities?
 - What are your company's **AI policies**?
 - Is the data **sensitive or private**?
 - Are you using a **public vs. internal** AI tool?
 - ✓ Always use **human review**
 - ✓ Get **approval** if needed
 - ✓ Be **transparent** with your team/clients
 - ✓ Consider **ethical implications**
-

Checklist for Using Gen AI Responsibly at Work

- Evaluate if AI is appropriate for the task
 - Avoid reinforcing biases
 - Get required approval
 - Check privacy/security of the tool
 - Review AI output critically before using
 - Be transparent about AI use
-

Clear the Memory – When & Why

- Some tools **retain context** between prompts
- Clearing memory:

-  Protects privacy
-  Avoids lingering bias
-  Reduces confusion
-  Helps with troubleshooting

Note: Some tools auto-clear memory between sessions.

Final Reminder

AI is powerful—but it's not perfect.

Be curious. Be critical. Be responsible.

Together, human creativity + AI = better, fairer, safer outcomes.

M2:

Prompting for Tone & Style – Key Notes

How Gen AI Tools Understand Tone & Style

- Gen AI uses **contextual understanding** to match tone/style in outputs.
 - It learns from:
 - **Audience**
 - **Linguistic cues** (e.g., punctuation, phrasing)
 - **User preferences**
 - **References provided in prompt**
-

Strategies to Match Tone & Style

1. Specify Tone & Style in the Prompt

Include tone/style in the **Task** section of the prompt:

-  Better: “*Summarize this report in a friendly, professional, and easy-to-comprehend tone.*”

-  Avoid: “*Summarize this report.*” (too vague)

Use clear tone descriptors:

- “Witty banter” → instead of “humorous”
 - “Like talking to a friend” → instead of “casual”
 - “Scholarly and in-depth” → instead of just “academic”
 - Add constraints (e.g., “avoid jargon”)
-

2. Provide References

- References **help AI mirror** tone and style more accurately.
 - Example:

“*Use the tone of interviews with famous climbers*”
Adds clarity and cultural nuance to the output.
 - You can also:
 - Provide a **sample paragraph**
 - Use **past outputs** as tone/style references
-

3. Iterate on Tone & Style

- If the tone feels **off**, tweak the prompt:
 - Add new **tone descriptors**
 - Clarify **emotional tone**
 - Include details on **style, format, and intended impact**

Example Iteration:

“Make the language less cheeky and more reverent of the sport. Channel the spirit of climbing legends...”

 **Always Be Iterating** = Refine tone over multiple drafts

Why This Matters

- The right tone/style affects **how your message is received**
- Helps AI sound:
 - More **natural**
 - More **aligned with your audience**
 - Less **robotic or generic**

Think of it like directing an actor:

The clearer your instructions, the better the AI performs.

Tone Descriptor Cheat Sheet

General Tone	More Specific Alternative
Humorous	Witty banter, dry sarcasm
Casual	Friendly, conversational
Academic	Scholarly, like a professor
Persuasive	Compelling, convincing
Simple	Kindergarten-level clarity
Inspirational	Uplifting, motivational

M3:

Core Strategies for Data Analysis with Gen AI

1. Shape Your Prompt to Match the Tool's Strengths

Not all data analysis tasks are suited to gen AI—but many are! Use gen AI for:

- **Text analysis** (themes, tone, classifications)

- **Data augmentation** (generate realistic, simulated data)
- **Q&A** (plain-language queries on your dataset)
- **Scenario analysis** (predictive modeling)
- **Image/chart analysis** (extract insights visually)
- **Customer/market research** (social media, survey insights)

 *Example prompt:*

"What are the key themes in this list of 2,000 survey responses?"

2. Get Your Dataset Ready

Your output is only as good as your input. Ensure your data is:

- Accurate
- Updated
- Complete
- Consistent
- Relevant
- Free from bias

 *Example prompt:*

"Here's my dataset. Can you check for missing values, duplicates, or inconsistencies?"

3. Encourage Exploration with Open-Ended Prompts

Let the AI explore the data and surface hidden patterns or trends.

 *Example prompt:*

"You're a data analyst exploring this real estate dataset. What trends or outliers do you notice?"

Avoid overly narrow questions unless you're targeting specific insights.

4. Use Embedded AI Tools

Leverage AI built into tools like:

- **Google Sheets (Gemini)** – write formulas, summarize files
- **Tableau Pulse** – personalized insights

- **Looker Studio** – dashboards with prebuilt data connectors
- **BigQuery** – auto-generated SQL queries for large datasets

 Example prompt inside Google Sheets:

"Create a chart that shows quarterly sales growth by region using this table."

5. Work Around Limitations

Gen AI tools aren't ideal for:

- Advanced statistical modeling
- Deep analysis of highly structured/tabular data

Instead, you can:

- Ask for step-by-step instructions
- Request summaries or explanations of methods
- Generate code to run in other platforms

 Example prompt:

"What's the best statistical method to analyze customer churn from this dataset? Explain how to apply it."

Final Tip: Watch for Hallucinations

In large datasets, spot-checking can miss errors. Keep outputs verifiable and always double-check critical numbers or patterns.

Before entering data into a gen AI tool,
make sure the data is:



Up to date



Consistent



Accurate



Relevant



Complete



Bias-free



How to Use Gen AI to Understand the Unfamiliar

1. Translate to Another Language

Use gen AI to go beyond word-for-word translation:

- **Prompt:** *Translate this message into French using a professional tone.*
 - **Prompt:** *What does “joie de vivre” mean in English?*
 - **Prompt:** *Explain the idiom “when pigs fly” in simple terms.*
-

2. Interpret Jargon or Complex Concepts

Break down hard-to-understand industry terms or new concepts:

- **Prompt:** *What is zero-based budgeting in simple terms?*
 - **Prompt:** *Explain the concept of “blockchain” to a high school student.*
 - **Prompt:** *Give 3 real-life examples of how AI is used in education.*
-

3. Demystify Spreadsheets

Whether you're overwhelmed by formulas or unclear data trends:

- **Prompt:** *Explain the formula in cell D4 step-by-step.*
 - **Prompt:** *Find and list any inconsistencies in this dataset.*
 - **Prompt:** *Summarize the traffic trends for our website using this spreadsheet.*
-

4. Understand Error Messages

Quickly troubleshoot errors from your devices or apps:

- **Prompt:** *What does “502 Bad Gateway” mean and how can I fix it?*
 - **Prompt:** *Explain the error “Segmentation Fault” in Linux for a beginner.*
 - **Prompt:** *Why is my browser saying “ERR_CONNECTION_RESET”?*
-

5. Get Help With Coding

AI can assist whether you're debugging or just learning to code:

- **Prompt:** *Explain what this Python script does like I'm a beginner.*
- **Prompt:** *Write JavaScript code that validates an email input.*
- **Prompt:** *Find the bug in this function that's supposed to calculate a discount.*

⚠ Note: Always validate AI-generated code—it can hallucinate or include unsafe patterns.

6. Explain Charts and Graphs

Make data visuals more digestible:

- **Prompt:** *Summarize the main insights from this pie chart.*
 - **Prompt:** *Are there any outliers in this dataset? List them.*
 - **Prompt:** *Does this chart suggest a correlation between ad spend and conversions?*
-

Pro Tip: Evaluate Everything

Especially when you're working in a new domain or unfamiliar language:

- Cross-reference outputs.
 - Ask for examples or simpler explanations.
 - Watch out for hallucinations.
-

Generative AI tools can help:

Organize your presentations

Build talking points

Create images

Sampling Parameters: The Basics

When you prompt a gen AI tool, you're not just pulling a static answer—you're influencing a probability-driven decision process. **Sampling parameters** let you control that process.

1. Temperature

Controls the *randomness* of the AI's response.

Temperature	Output Style	Use Case
0.1	Deterministic, safe, focused	Data summaries, factual info, coding
1.0	Balanced creativity	Emails, content drafts
2.0	Highly creative, unpredictable	Brainstorming, fiction, naming ideas

 **Metaphor:** Rolling a die—low temp = weighted toward best answer; high temp = roll the dice freely.

2. Top-k Sampling

Limits the number of tokens (word choices) considered.

Top-k Value	Effect	Use Case
1	Only the <i>most likely</i> output used	Mission-critical tasks
10	Small pool of reasonable options	Clean explanations, reduce hallucination
100+	Larger pool, more variation	Creative writing, marketing slogans

 Use **low top-k** for precision; **high top-k** for variety.

3. Top-p Sampling (*aka nucleus sampling*)

Chooses tokens until total probability hits a threshold.

Top-p Value	Effect	Use Case
0.1	Most probable tokens only	Executive summaries, statistical data
0.5	Some variety, still focused	Balanced ideas
0.9–1.0	Broad selection, more exploration	Brand strategy, alternative solutions

 Think of it as "pick until you hit X% confidence."

At 1.0, **top-p** is turned off and everything is on the table.

Putting It All Together

Scenario	Temperature	Top-k	Top-p	Why
Technical document summary	0.1	10	0.3	Precision, minimal noise
Brainstorm new ad campaign ideas	1.5	100	0.9	High creativity, many options
Generate code with explanation	0.2	5	0.1	Clarity, accuracy
Compare marketing	0.8	40	0.7	Moderate variety,

Scenario	Temperature	Top-k	Top-p	Why
strategies				focus retained

⚠ Final Tip: Always Review Outputs

Higher creativity = higher chance of hallucinations. Always **cross-check** outputs for accuracy, especially when:

- Using AI for decision-making
 - Creating content for public audiences
 - Interpreting data or code
-

🎯 Why it Matters:

Adjusting these settings helps you:

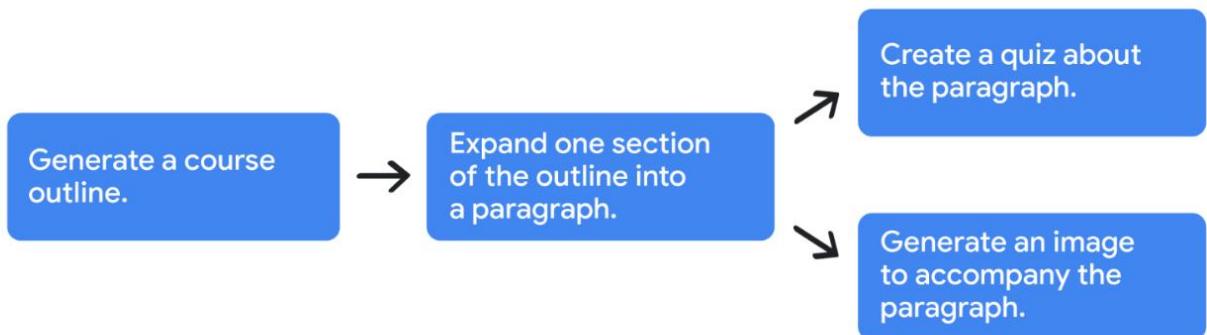
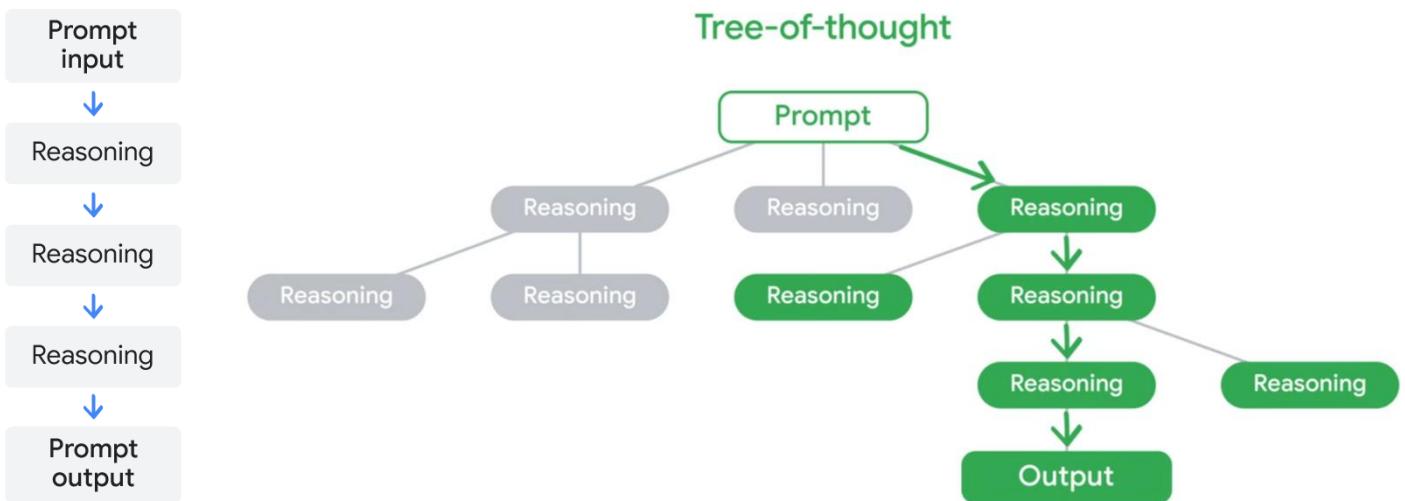
- Get **more accurate results** when precision matters (e.g., data summaries, coding)
 - Encourage **creative thinking** for tasks like brainstorming or writing
 - Reduce **hallucinations** (false outputs) when you want trustworthy info
-

This is a technical but practical explanation of how to control the behavior of AI tools to match your goal — whether it's accuracy, creativity, or variety. It's especially useful if you're working with AI in areas like:

- Writing or content generation
- Coding or debugging
- Data analysis
- Marketing

- Customer service scripting
-

M4 :



🧠 What is Prompt Chaining?

- A technique where the **output of one prompt** is used as **input or context for the next**.
 - Ideal for **multi-step tasks** that are too complex for a single prompt.
 - Helps maintain **clarity, control, and direction** across steps.
-

🧠 Why Use Prompt Chaining?

- Breaks down complex tasks into **manageable steps**

- Reduces AI **hallucinations** (incorrect/confusing results)
 - Encourages **human-in-the-loop** decision-making
 - Helps guide AI through **multi-phase projects**
-

Prompt Chaining Example:

Goal: Create an onboarding course for new hires at an ad agency

1. ◆ Prompt: Generate an onboarding course outline
Output: Topics like company culture, tools, roles, etc.
 2. ◆ Prompt: Expand a bullet point (e.g., design role expectations) into a 100-word paragraph
Output: Paragraph detailing first-year responsibilities
 3. ◆ Prompt: Create a quiz based on the paragraph
Output: Multiple-choice questions
 4. ◆ Prompt: Design a congratulatory image with a specific theme
Output: Image with art supplies and computers
-

Advanced Techniques:

Chain-of-Thought Prompting

- Ask AI to **explain its reasoning** step-by-step
- Helps identify **how** it arrived at the answer
- Use prompts like:
 - “Go step by step”
 - “Explain your reasoning”

Tree-of-Thought Prompting

- Ask AI to **generate multiple solutions/ideas**
- Lets you **compare, explore, and choose** the best path
- Helpful for creative tasks and brainstorming

- Like branching paths: go back if one doesn't work
-

Tips for Success:

- Be **specific and clear** at each step
 - Include enough **context** in every new prompt
 - Evaluate outputs regularly
 - Mix both **chain-of-thought** and **tree-of-thought** if needed
-

Meta-Prompting – Quick Revision Notes

What is Meta-Prompting?

- A method where **you use AI to help create or improve prompts.**
 - Think of it as **asking AI to help you ask better questions.**
 - Especially helpful when:
 - You don't know how to phrase a prompt
 - Your existing prompts need better results
 - You want to brainstorm with AI itself
-

Two Main Types of Meta-Prompting:

1. Prompt Generation Strategies

Use when you want to **design a new prompt from scratch.**

Strategy	Use Case	Example Prompt
Direct Generation	Ask AI to write a prompt for a task	"Generate a prompt to write a job offer letter."
Template Request	Ask for an outline or format	"Create a prompt template for travel planning."
Image-Based	Use an image to guide	"Generate a prompt to create a logo

Strategy	Use Case	Example Prompt
	the prompt	"in the style of this image."
Text-Based	Use written content to guide the prompt	"Use this manual to generate a prompt that explains key concepts."
Meta-Prompt Chaining	Break big prompt creation into smaller tasks	"Start by generating a prompt for a grant proposal's intro."

2. 🎯 Prompt Refinement Strategies

Use when your **existing prompt needs improvement**.

Strategy	Use Case	How It Helps
Leveling Up	Improve tone, detail, or impact of a prompt	Ask: "How can I make this prompt more engaging?"
Remixing	Combine multiple prompts into one	Synthesize the best parts of all your attempts
Style Swap	Change tone or emotion of the prompt	Make results more vivid, emotional, or technical

🌟 Why Use Meta-Prompting?

- Boosts **prompt creativity and effectiveness**
- Helps overcome **prompt writer's block**
- Refines tone, content, and structure
- Works well with the **TCREI prompting framework**:
 - **Task**
 - **Context**
 - **References**
 - **Evaluate**

- Iterate
-

Tips for Using Meta-Prompting:

- Be honest with AI: “I’m stuck. Suggest a better way to ask this.”
 - Use it to **reframe, expand, or clarify** unclear ideas
 - Great for content creation, troubleshooting, and prompt brainstorming
-

AI Agents — Revision Notes

What Is an AI Agent?

An **AI Agent** is a **customized generative AI tool** that takes on a specific **persona**, **context**, and **set of instructions** to help with:

- Learning new skills
 - Practicing scenarios
 - Collaborating on projects
 - Providing expert feedback
-

Key Components of an AI Agent Prompt:

Element	Description
Persona	Role the AI plays (e.g., "Act like a business consultant")
Context	Situation or background (e.g., “I’m a freelance developer...”)
Interaction Style	Specify how the AI engages with you (e.g., quizzes, feedback, roleplay)
Stop Phrase	Custom exit command (e.g., “I’m finished”)
Takeaways	Ask for a post-session summary or feedback

 **Examples of AI Agent Use Cases:** **1. Skill Practice**

Use Case: Practicing negotiations as a freelancer

Persona: Business consultant

Style: Roleplay + feedback

Prompt Tip: Include sample scenarios + ask for critique

 **2. Get Specific Feedback**

Use Case: Submitting writing for a contest

Persona: Fiction magazine judge

Style: Critique + improvement suggestions

Prompt Tip: Paste your text, attach guidelines, request lens of evaluation

 **3. Learn Something New**

Use Case: Learning Spanish

Persona: Spanish tutor

Style: Lessons, quizzes, activities, conversation

Prompt Tip: Add learning goals + error correction instructions

 **4. Collaborate on a Project**

Use Case: Writing a grant proposal

Persona: Grant writer

Style: Co-writing, brainstorming, language review

Prompt Tip: Break project into sections and assign tasks

 **More AI Agent Ideas:**

- **Public speaking coach**
- **Coding partner**
- **Resume reviewer**

- Therapist roleplay bot
 - Workout planner + nutritionist
 - Travel assistant
-

 **Tools & Resources for Building AI Agents:**

-  **One Useful Thing** – Newsletter by Prof. Ethan Mollick for practical AI usage
 -  **LangChain** – Low/no-code AI agent workflows
 -  **Vertex AI Agents** – Google's platform for app integration
 -  **Gems (Google Gemini)** – Custom AI personas like brainstormer, career guide, etc.
-

 **Final Takeaway:**

AI Agents = *Your on-demand team of virtual experts.*

They simulate human conversation, roleplay scenarios, give feedback, and help you work smarter—not harder.

Google Prompting Essentials

Design prompts that work



Follow the 5-step prompting framework to start using AI.

Task

Clearly describe what you want the generative AI tool to help you with, and specify a persona and format.

Context

Provide all the necessary details to help the gen AI tool understand what you want it to do.

References

If available, provide examples for the gen AI tool to use in creating its output.

Evaluate

Assess the output to determine if it's helpful.

Iterate

If the output isn't helpful, continue to refine by clarifying what you need until it's just right.



To remember the framework, keep in mind:
Thoughtfully → **Task**
Create → **Context**
Really → **References**
Excellent → **Evaluate**
Inputs → **Iterate**

When in doubt, iterate

Revisit the prompting framework.

Introduce constraints.

Separate your prompts into smaller prompts.

Adjust your phrasing or switch to an analogous task.



8 in 10

people globally think AI will transform most jobs or industries in the next 5 years.¹

82%

of executives believe workers who are skilled at using AI should be **paid more**.²

74%

of executives believe workers who are skilled at using AI should be **promoted more often**.²



Multimodal prompting

Combine multiple types of formats, or modalities—text, image, and audio—in a single prompt.



Prompt with images:

Take a picture and ask questions about it. Include constraints to focus on what's most important in the image.



Prompt with audio:

Record voice or music and ask for descriptions. Be sure to provide plenty of context about the audio.



Combine modalities:

Share written, visual, or audio references to help guide the output, and be specific about why you're including each.



Get a deeper understanding:

Pair written prompts with audio or images, and gain a deeper understanding of what you're seeing or hearing.

Design an AI agent

Create an AI agent to help you practice skills, collaborate on a project, get feedback and more.



Assign the persona you want the gen AI tool to take on.



Give context and scenario details of the conversation.



Specify conversation types or the kinds of interaction you want the tool to support.



Provide a stop phrase you can use to end the conversation.



Ask the tool to provide takeaways or improvement areas after the conversation ends.



Complete multi-part tasks with prompt chaining

Use the output from one prompt as context in the input of your next prompt.

Ask a gen AI tool to explain how it reached an output

Need help troubleshooting? Ask a gen AI tool to explain its reasoning through **chain-of-thought** prompting.



Compare outputs simultaneously

Instruct the gen AI tool to show you the different options it considers while crafting its output with **tree-of-thought** prompting.



Responsible AI checklist



- Consider the effects of using AI in your unique situation.
- Get approval to use AI from the appropriate people at your company before you use gen AI on projects or with clients.
- Consider privacy and security implications of the gen AI tool you're using.
- Evaluate all content before you incorporate it into your work or share it with anyone.
- Disclose your use of AI to teammates and clients and be transparent about how you use it.