

Cheat Sheet: Step-by-step vs. Chain-of-Thought Prompting

- ⚡ Step-by-step = Splitting tasks → clear, consecutive actions.
- ⚡ Chain-of-Thought = Reasoning within one prompt → making logical steps explicit.

Why this matters

Get smarter AI answers by learning when and how to use these two powerful prompting strategies.

- **Step-by-step prompting** → you split the problem into multiple separate instructions.
- **Chain-of-Thought (CoT) prompting** → the AI reasons “out loud” within a single prompt.

👉 Choose the right tool for the job: **precision or reasoning**.

What are Step-by-step and Chain-of-Thought?

- **Step-by-step prompting:** Breaking a task down into smaller, structured steps that the AI executes one by one.
- **Chain-of-Thought prompting (CoT):** Asking the AI to show its logic explicitly in one coherent answer.

Working out each technique

Step-by-step Prompting

- **Definition:** You guide the AI through sub-steps, each in a separate prompt.
- **Strength:** More control, easier to adjust and correct mistakes.
- **Example prompts:**
 - 1 “First list the ingredients for a chocolate cake.”
 - 2 “Now describe how to mix them.”
 - 3 “What’s the ideal temperature and baking time?”



Chain-of-Thought (CoT) Prompting

- **Definition:** A single prompt in which the AI explains its reasoning step by step.
- **Strength:** Provides insight into logic and works well for complex tasks.
- **Example prompt + answer:**
Prompt: “Tom has 10 sweets. He eats 3 and gives away 2. Explain step by step how many are left and why.”
Answer: “Start: 10. Eats 3 → 7. Gives 2 away → 5. So, 5 sweets remain.”

Comparison Table

Aspect	Step-by-step	Chain-of-Thought (CoT)
Structure	Multiple separate prompts/stages	One prompt with internal logic
Process	Controlled execution per step	AI reasons in one go
Flexibility	High: each step can be adapted	Lower for you: error requires new prompt
Ideal use	Teaching, process descriptions, workflows	Maths, logic, analysis, explanation
Error handling	Easy to isolate and correct mistakes	One wrong step can affect whole chain
Risk if confused	Thinking AI splits tasks automatically	Thinking no guidance is needed

✓ Handy rules of thumb

Use **Step-by-step prompting** when:

- You want control over each stage of the task.
- You are explaining procedures or step-by-step plans.
- You expect to make adjustments along the way.

Use **Chain-of-Thought prompting (CoT)** when:

- You want the AI to reason or explain.
- The task requires logic or analysis.
- You want insight into how the AI thinks.



Try this

Ask the AI:

1. “Write a lesson plan on photosynthesis. Start with the key points, then expand.” (Step-by-step)
2. “Explain how photosynthesis works. Think step by step and reason out loud.” (CoT)

👉 Compare how much control you have vs. how much logic the AI reveals.

Learn & apply yourself

“Step-by-step gives you the steering wheel; Chain-of-Thought shows you how the AI reasons.”

👉 Try both on the same task and see where you need more control or insight.

Discover more

Cheat Sheet: [Step-by-step Prompting \(PDF\)](#)

Cheat Sheet: [Chain-of-Thought Prompting \(PDF\)](#)

More cheat sheets on prompting: symbio6.nl/en/sheets

