Cheat Sheet: Chain-of-Thought Prompting

AI thinks better out loud — a chain of thought makes errors visible and reasoning testable.

Why this matters

In our sessions we notice many users settle for a final answer. Yet it is only when you ask AI to produce a **chain of thought** (step-by-step reasoning) that you gain more transparent, reliable, and verifiable results.

Dimension: Reasoning Style

Chain-of-Thought (CoT) = explicitly asking AI to explain how it reasons in sequential steps.

Example

❌ “Which factors influence climate change?”
→ “Emissions, deforestation and ocean changes.”

✅ “Which factors influence climate change? Give step by step how each factor contributes.”
→ Structured reasoning per factor (CO_2 → warming; deforestation → less absorption; ocean currents → heat distribution).

Tips

- **Add by default**: *“think step by step”* or *“show your reasoning.”*
- Apply to complex or **important questions** (science, policy, education).
- Keep chains **concise and logical**: overly long ones create noise.

✅ Checklist – Do’s & Don’ts

Do’s	Don’ts
Ask for step-by-step reasoning	Only ask for a final answer
Use CoT for complex tasks	Apply CoT to trivial queries
Reread and critique the reasoning	Blindly assume the steps are correct

🚫 Not to be confused with…

- **Reflection / Self-critique** → AI reviewing its own answer (comes *after* CoT).
- **Explanation prompting** → "Explain this to a child" = rephrasing, not reasoning.
- **Bullet-point answers** → lists without logical links = structure, not thought.

Try this

Prompt: "How do you calculate the area of a triangle with sides 5, 6 and 7?"

- Without chain of thought.
- With chain of thought (Heron's formula step by step).
  👉 Compare: where does the logic become clearer?

Learn & Apply

The real difference doesn't come from reading a worked-out reasoning, but from drafting the steps yourself in your own cheat sheet.

Explore more

🔗 More cheat sheets on prompting: symbio6.nl/en/sheets
🚀 In our workshops we show how to apply chains of thought for more complex questions.