

Break problems into concrete steps



How you can do it

Here is a three-step guide showing one possible approach to using generative AI to break a complex problem down into concrete steps.

1. Define the problem

Describe the problem you are facing. This could be a complex research question, a challenging experimental design, an analysis task, or a practical problem in a project.

Try to clarify:

- What does the problem involve?
- What would you like to achieve?
- What do you already know?
- What are you unsure about?
- Which requirements, resources, or constraints need to be taken into account?

Before involving the chatbot, note down some possible components or next steps yourself. This gives you an independent starting point for evaluating its suggestions.

2. Explore possible steps and approaches

Provide the chatbot with the necessary context, and use it to explore how the problem can be broken down.

For example, you can ask the chatbot to:

- break the problem into smaller subproblems
- identify the questions that need to be answered first
- suggest a possible order for the work
- explain which steps depend on one another
- point out missing information or potential obstacles
- outline several different approaches
- suggest checkpoints where the solution should be evaluated

Use follow-up questions to explore unclear or particularly important steps. A step-by-step plan should be adaptable as you gain new knowledge about the problem.

3. Evaluate and adapt the plan

Examine whether the chatbot's suggestions actually help you solve the problem. A

plan can look clear and convincing even when it is based on incorrect assumptions or omits crucial steps.

Consider the following:

- Are all the steps relevant to the problem?
- Are any important details or actions missing?
- Is the order logical?
- Is the plan academically and practically feasible?
- Does it take the applicable requirements and constraints into account?
- Are there other approaches that should be considered?
- Which step makes the most sense to start with?

Adapt the plan and choose your next step yourself. Revisit the problem regularly and adjust the approach if new information changes the assumptions.



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