

# Critical thinking: Tools

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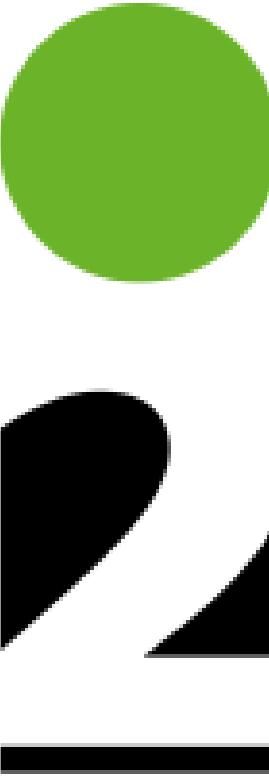
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## CRITICAL THINKING TOOLS



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# Fundamentals of critical thinking



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# Tools

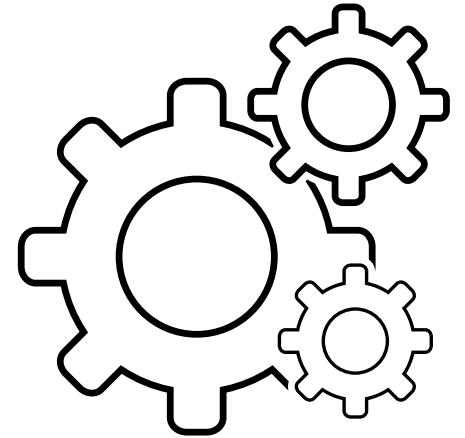


1

Socratic Questioning

2

Mind mapping





## Socratic Questioning

**Ask probing questions to explore ideas deeply.**

**When?** reasoning/argumentation

**How?**

1 Ask **probing questions**.

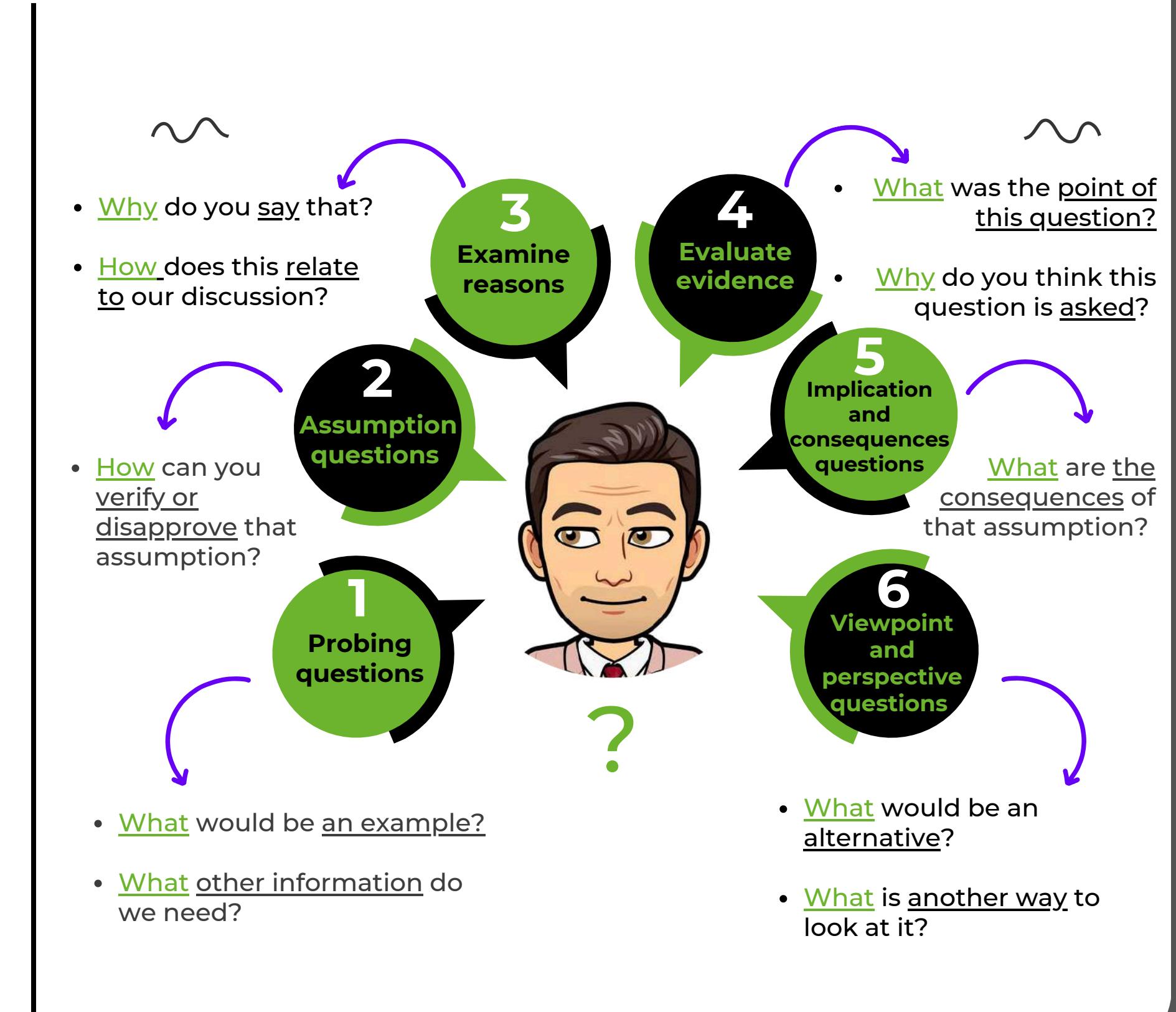
2 Explore **assumptions**.

3 Examine **reasons**.

4 Evaluate **evidence**.

5 Consider **implications**.

6 Explore **alternative viewpoints**.



## CT2 - CRITICAL THINKING TOOL 2

Level: ★★★



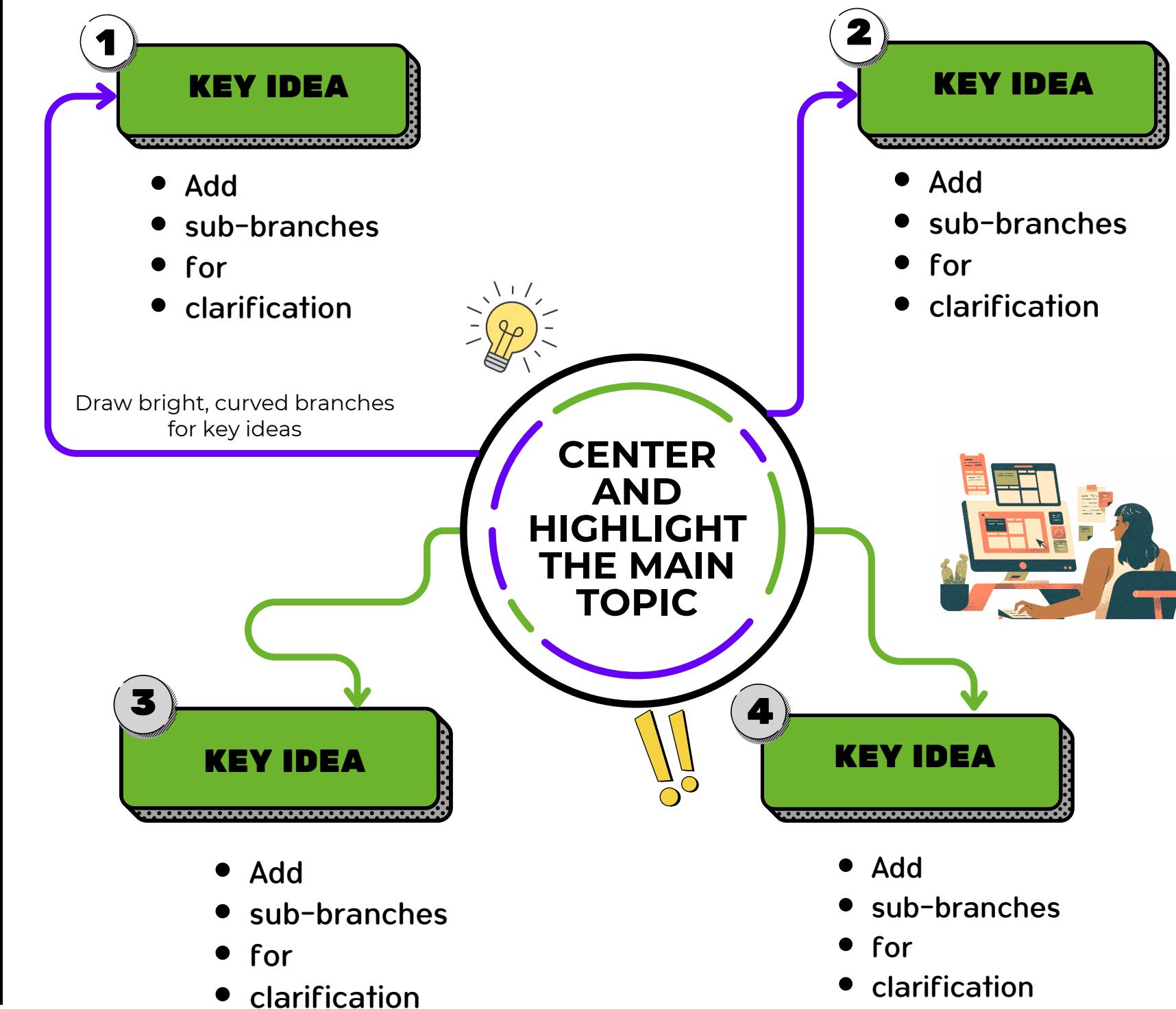
# Mind mapping

**visually organizes thoughts, explores idea relationships, identifies key points, and generates insights.**

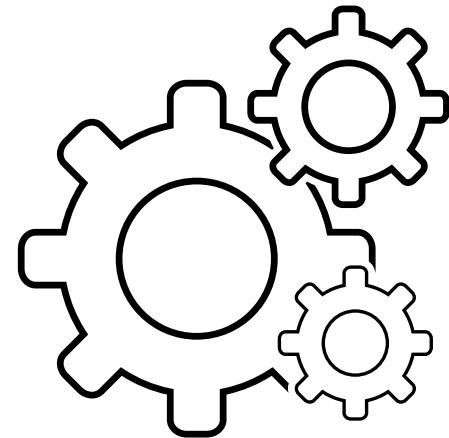
**When?** logic, reasoning/argumentation

**How?**

- 1 Begin with a **large blank sheet**.
- 2 Center and highlight the **main topic**.
- 3 Draw bright, curved **branches for key ideas**.
- 4 Label branches with **one-word identifiers**.
- 5 **Number branches** clockwise for sequence.
- 6 Add **sub-branches** for clarification.
- 7 **Use symbols** to emphasize importance.



# Tools



- 3** Argument Mapping
- 4** Problem and Solution map
- 5** Cause and Effect Diagram
- 6** Questioning Child - The 5 Why's

## CT3 - CRITICAL THINKING TOOL 3

Level: ★★★



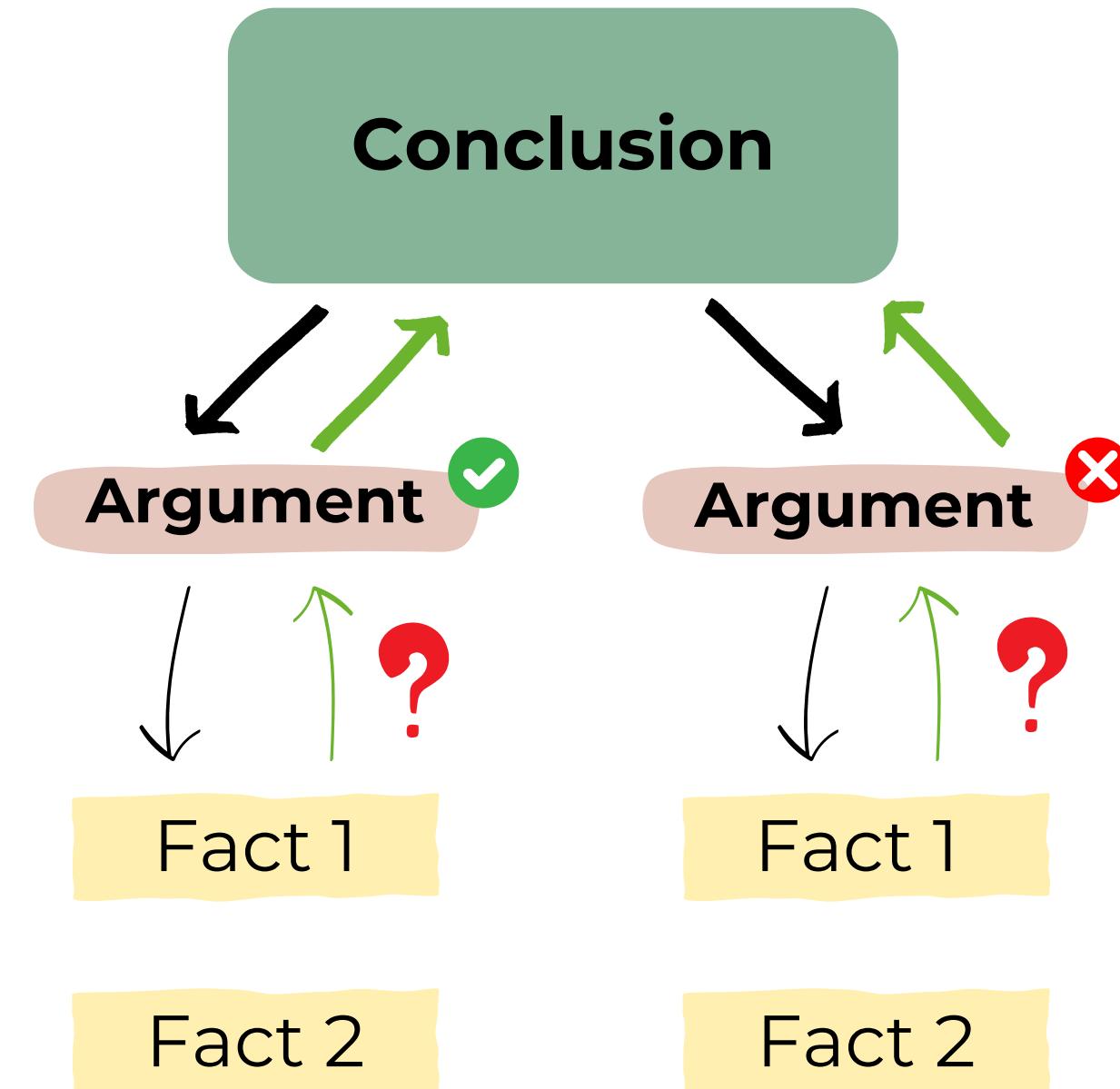
# Argument mapping

Argument mapping visually clarifies and evaluates reasoning structures.

**When?** reasoning/argumentation

**How?**

- 1 Choose a text or statement.
- 2 Read and identify the **conclusion**.
- 3 **Reconstruct** the inferential structure by defining the **reasonable arguments and/or facts** for coming to the conclusion.
- 4 **Analyse** if reasons (facts & arguments) support the conclusion (check fallacies).
- 5 Have **fun**, make it interesting, like using flat earther arguments!



## CT4 - CRITICAL THINKING TOOL 4

Level: ★★★

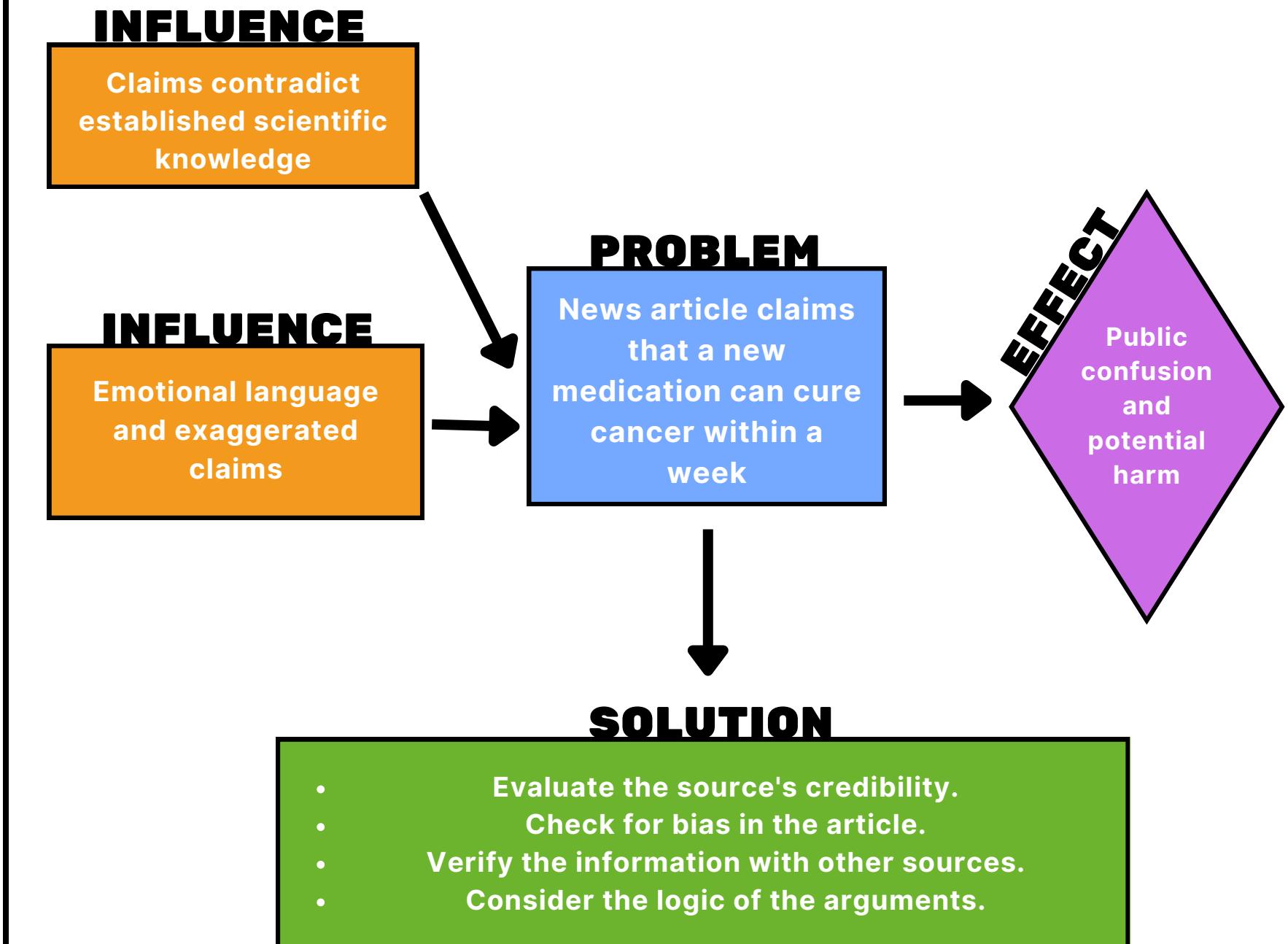


# Problem and Solution Map

**A problem solution map analyzes data to offer a solution to a problem.**

**When?** Problem solving and Informed Decision making

- 1 Define Problem:** Identify and articulate the problem.
- 2 Gather Data:** Collect relevant data related to the problem.
- 3 Logical Analysis:** Analyze the gathered data logically.
- 4 Map Solution:** Use the analysis to map out a solution to the problem.



## CT5 - CRITICAL THINKING TOOL 5

Level: ★★☆



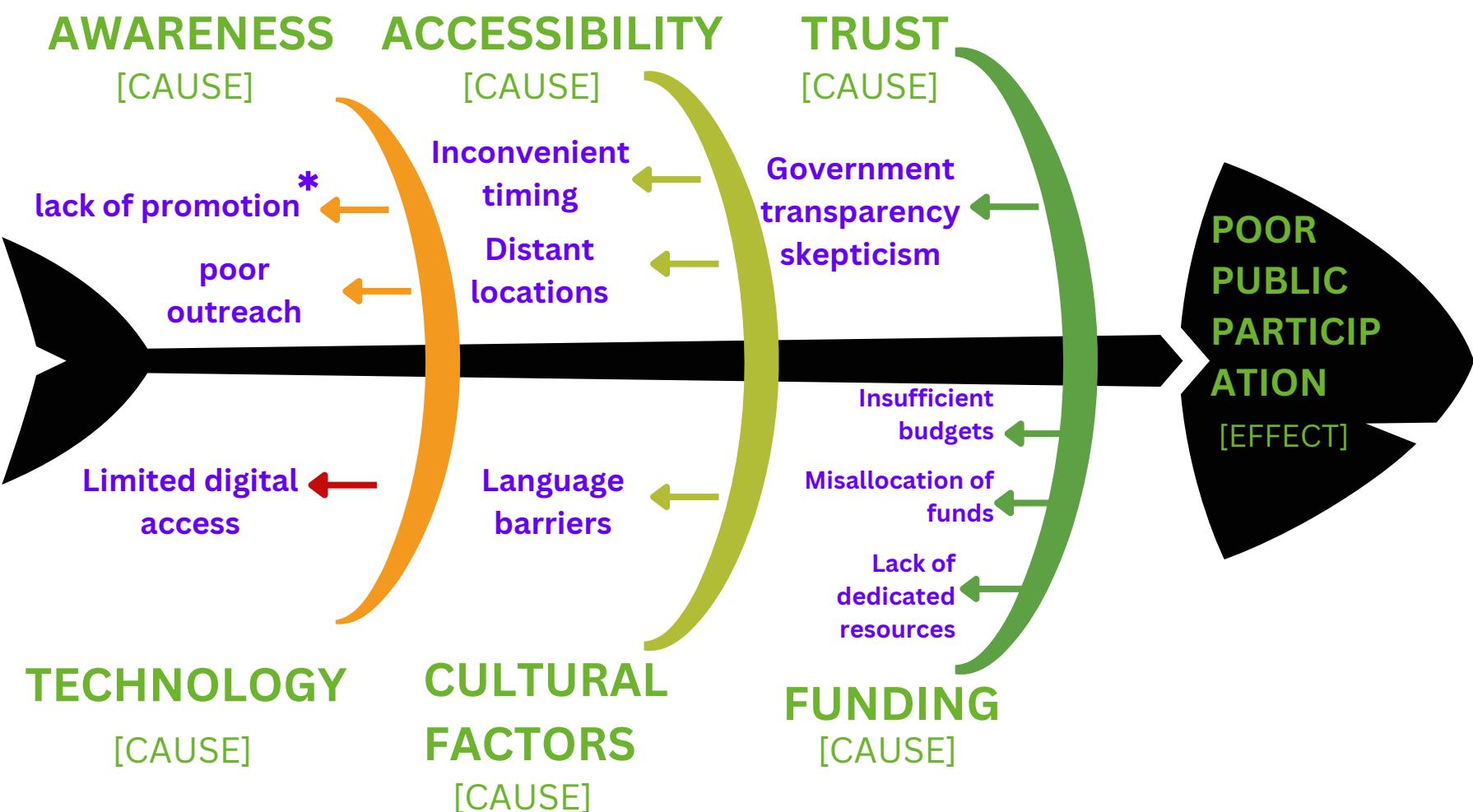
# Cause and Effect Diagram

Cause-effect diagrams (e.g., fishbone/Ishikawa) visually organize potential problem causes, showing relationships. Tree diagrams also depict cause-effect links.

**When?** Problem-solving

**How?**

- 1 Identify the problem.
- 2 List why it happens.
- 3 Draw a line and add branches for each reason.
- 4 Break down each branch into details.
- 5 Connect related causes with arrows.
- 6 Focus on key factors.
- 7 Find solutions for top causes.



\* purple indicates the **sub-causes** on the scheme

## CT6 - CRITICAL THINKING TOOL 6

Level: ★★☆



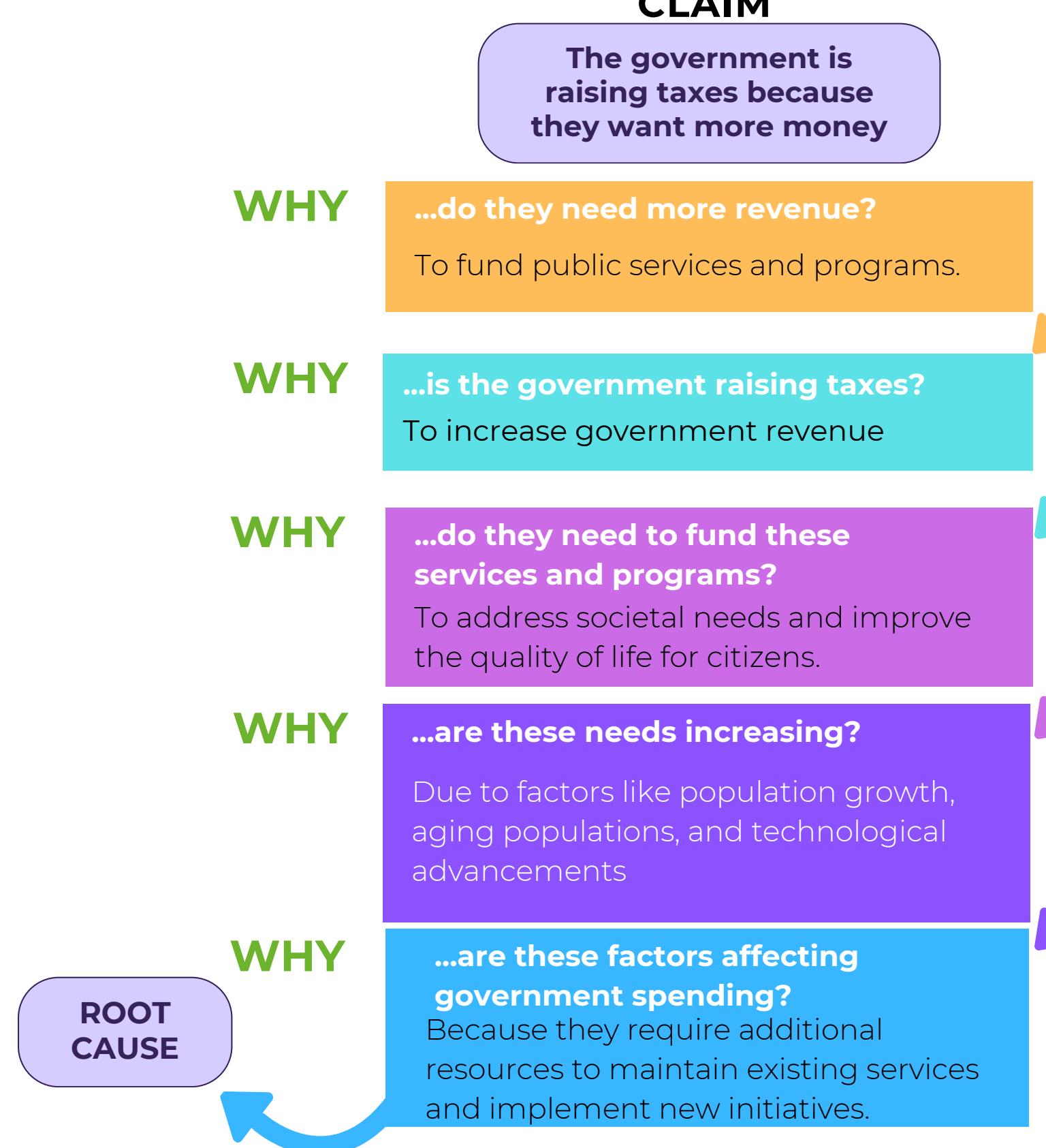
# Questioning Child - The “5 Whys” Technique

**Goal:** Examine the underlying assumptions and motivations behind a statement

## When? Reasoning

### How?

For any claim you encounter, **ask “Why?” five times** to dig deeper into its validity and origins.





# Barriers to Critical Thinking

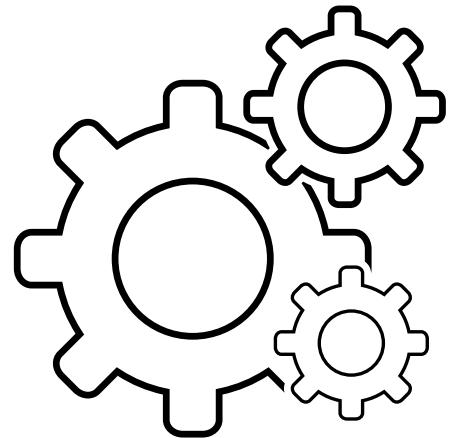


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# Tools



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Identifying Bias

8

Talking to conspiracy believers

## CT7 - CRITICAL THINKING TOOL 7

Level: ★★☆

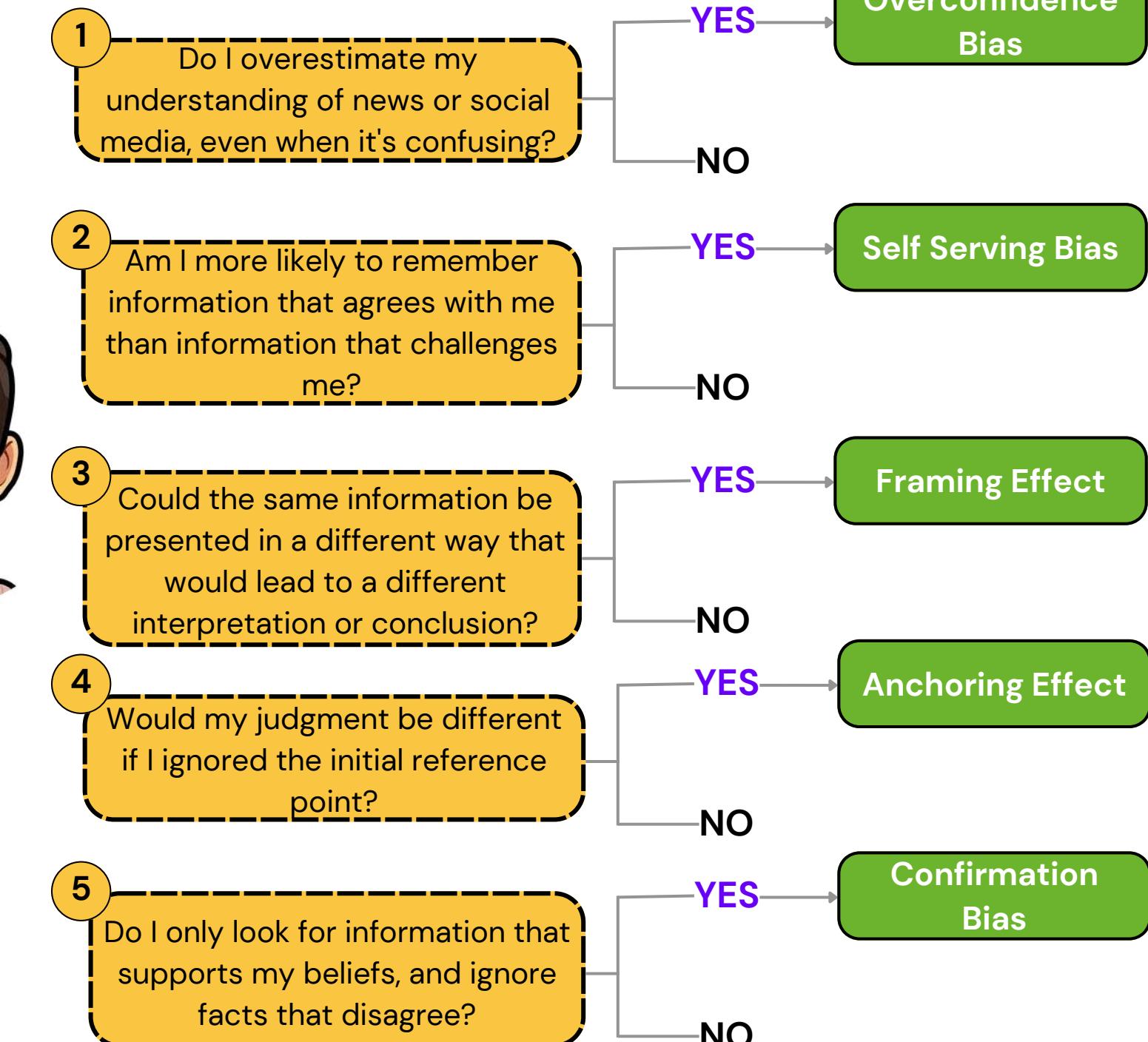


# Identifying bias

Use these questions to identify your bias. Remember, everyone has bias in one way or another. Being aware of it doesn't mean you would automatically overcome it, but it is the first step to making better informed decisions.

Here, we focus on these 5 types of bias:

- 1 **Overconfidence bias**
- 2 **Self Serving Bias**
- 3 **Framing**
- 4 **Anchoring effect**
- 5 **Confirmation Bias**



## CT8 - CRITICAL THINKING TOOL 8

Level: ★★☆



# Talking to Conspiracy Believers

## How?

- 1 Encourage **open debate** and self-reflection.
- 2 Engage trusted former **believers**.
- 3 Utilize **diverse sources**.
- 4 Show **empathy**.
- 5 Proceed step by step, emphasizing simple **facts and logic**.
- 6 Avoid overwhelming with pressure; allow **time** for processing.

