CONSTRUCTING AND COMMUNICATING ARGUMENTS

Dona Warren

UW – Stevens Point

The Pedagogical Challenge

Arguments can be difficult for students to **construct** because

It involves

- generating ideas that bear particular logical relationships to each other, and
- adopting a properly critical posture to those ideas, revising them if necessary.

It's often difficult for people to

- explicitly consider the logical relationships between the ideas that they are generating, and
- adopt a properly critical posture to their own claims.

Arguments can be difficult for students to **communicate** because

It involves

- expressing ideas in a way that makes their logical relationships easy for the audience to track.

It's easier for people to

- express ideas in the order in which the ideas occurred to them.

How Mapping can Help

Students first **construct** an argument by mapping it.

- Using skills developed when they learned how to analyze (or extract) arguments to generate and record ideas in a way that captures the logical relationship between these ideas.
- Using skills developed when they learned how to evaluate arguments to adopt a properly critical posture to their own claims.

Students then **communicate** their argument by

- expressing those ideas in a way that makes their logical relationships easy for the audience to track, making informed choices about the order in which they want to state their claims, which claims they want to leave unstated, and so on.

Graphically representing an argument (i.e. argument mapping) is an excellent way to helps students separate the process of constructing an argument from the process of communicating it.

How this Works

We can help students **construct** their own arguments by:

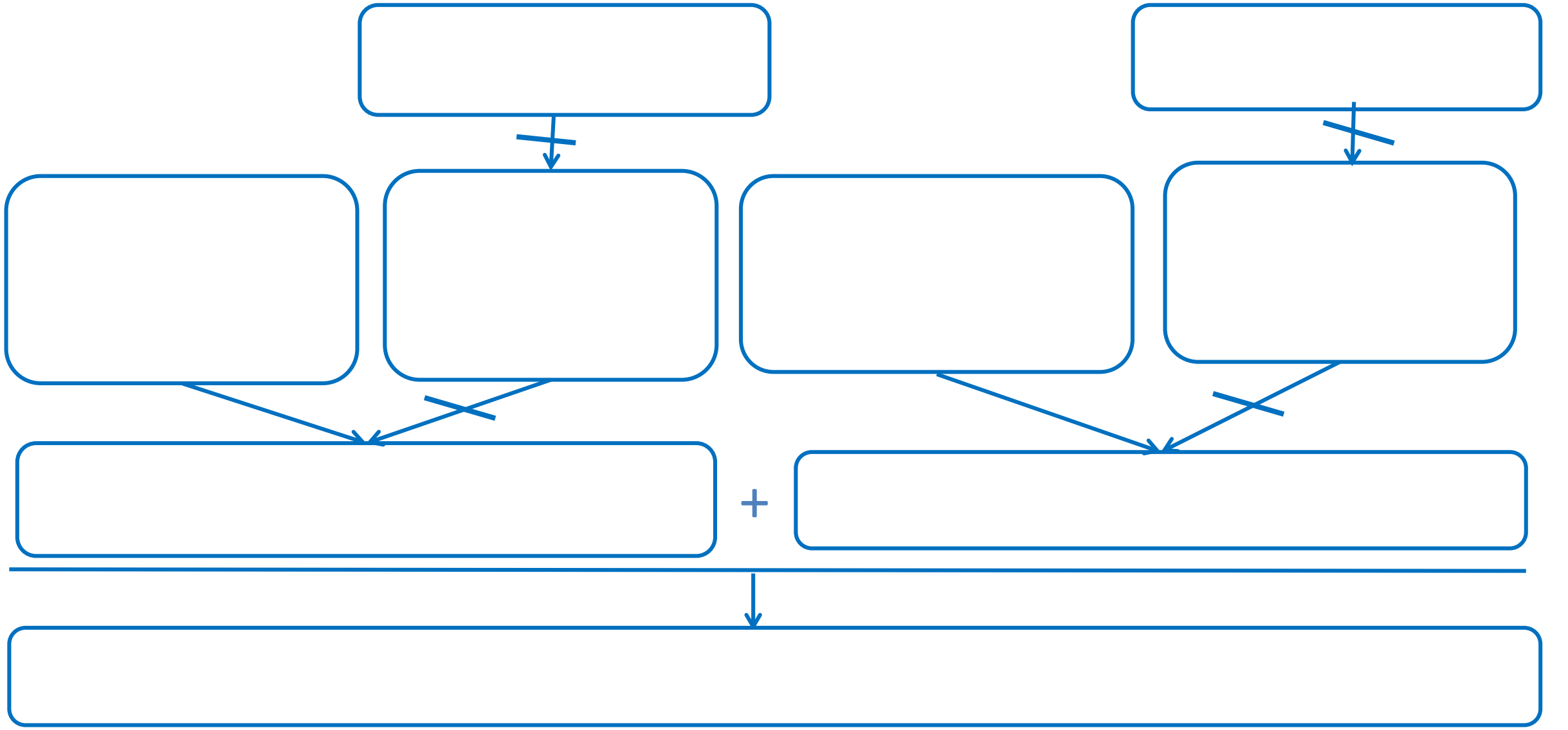
1. Using a template.
2. Referring to a generative procedure.

We can help students to **communicate** their own arguments by:

1. Using a template.
2. Referring to a set of principles.

Constructing an Argument: Template

- In the order indicated, fill in the boxes with one and only one complete idea.



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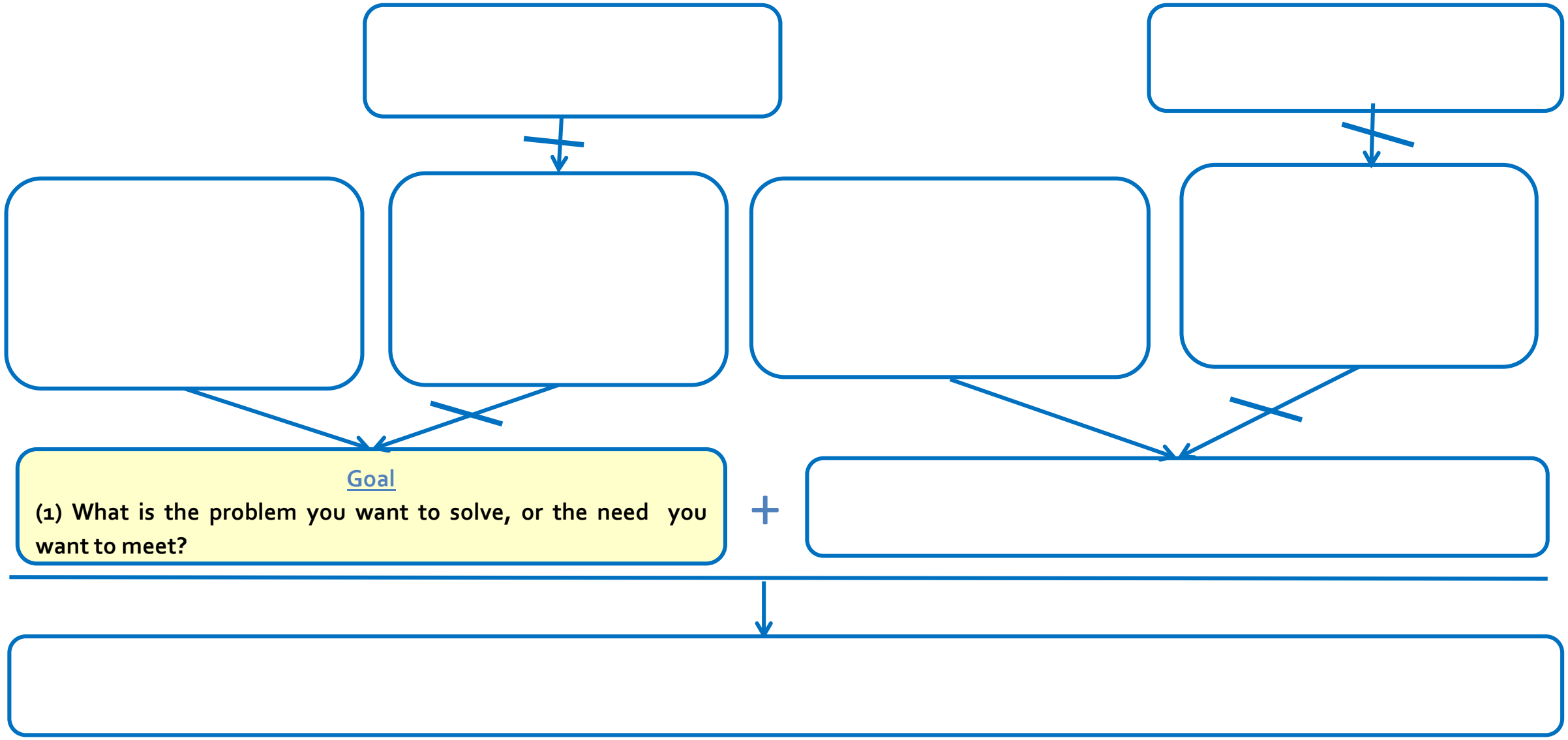

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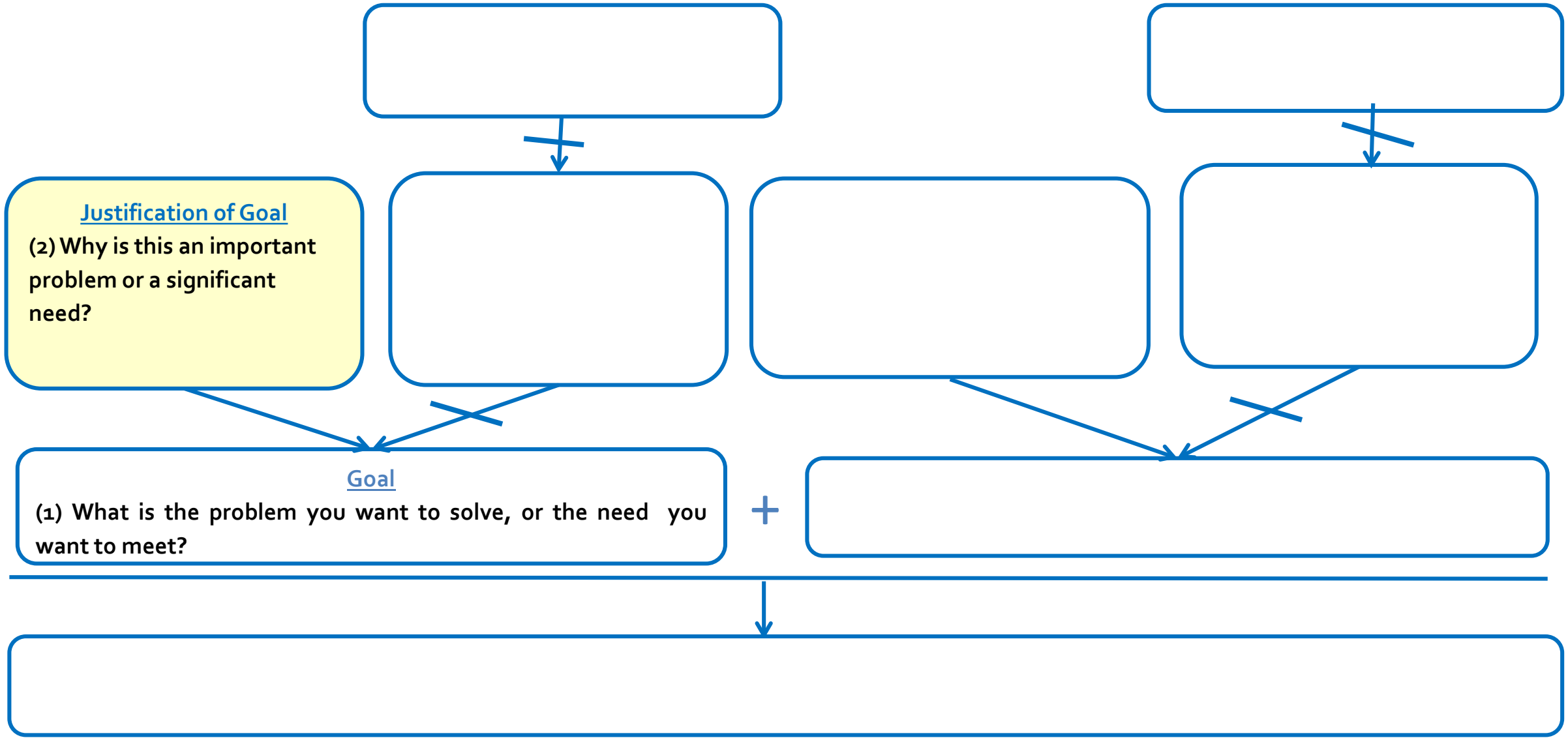

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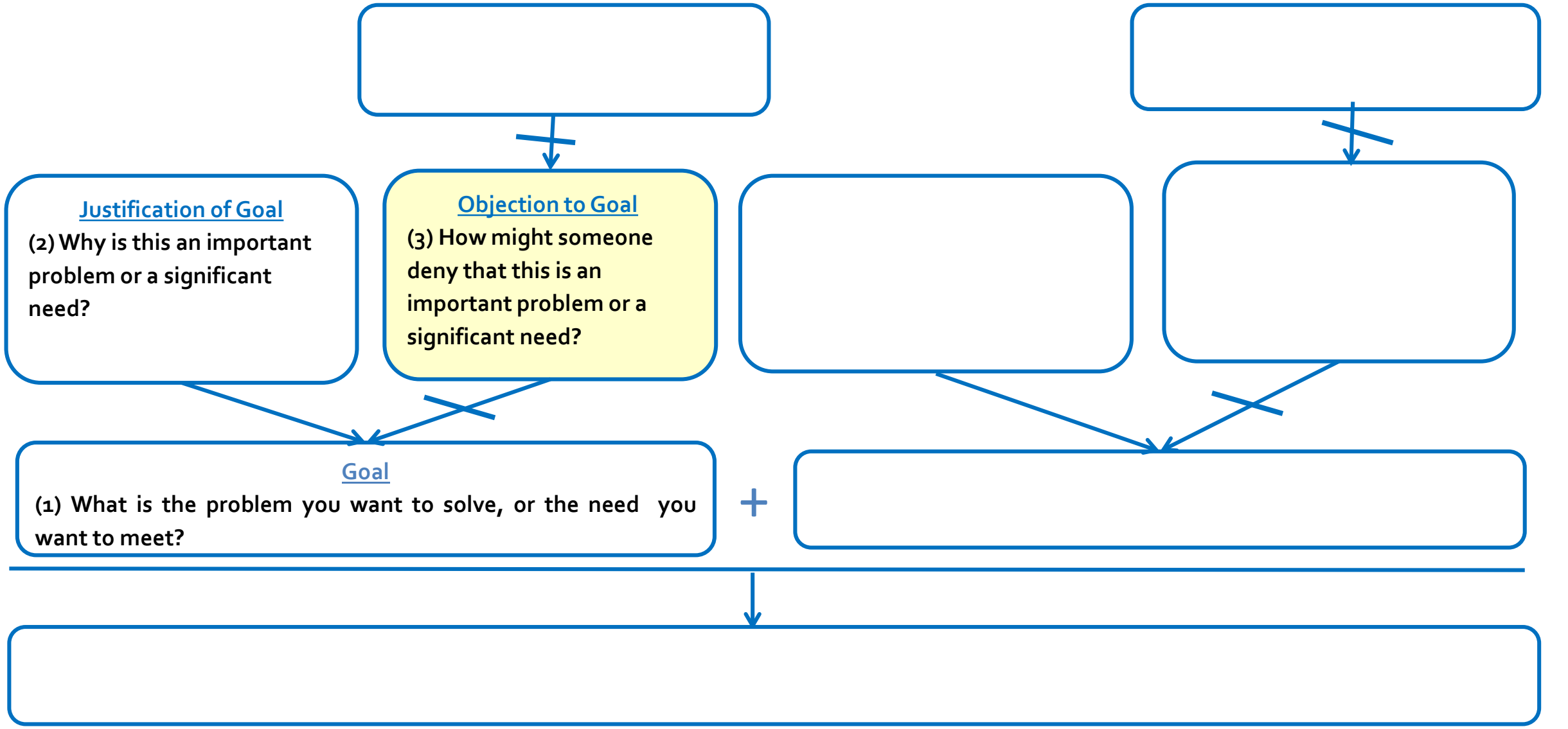

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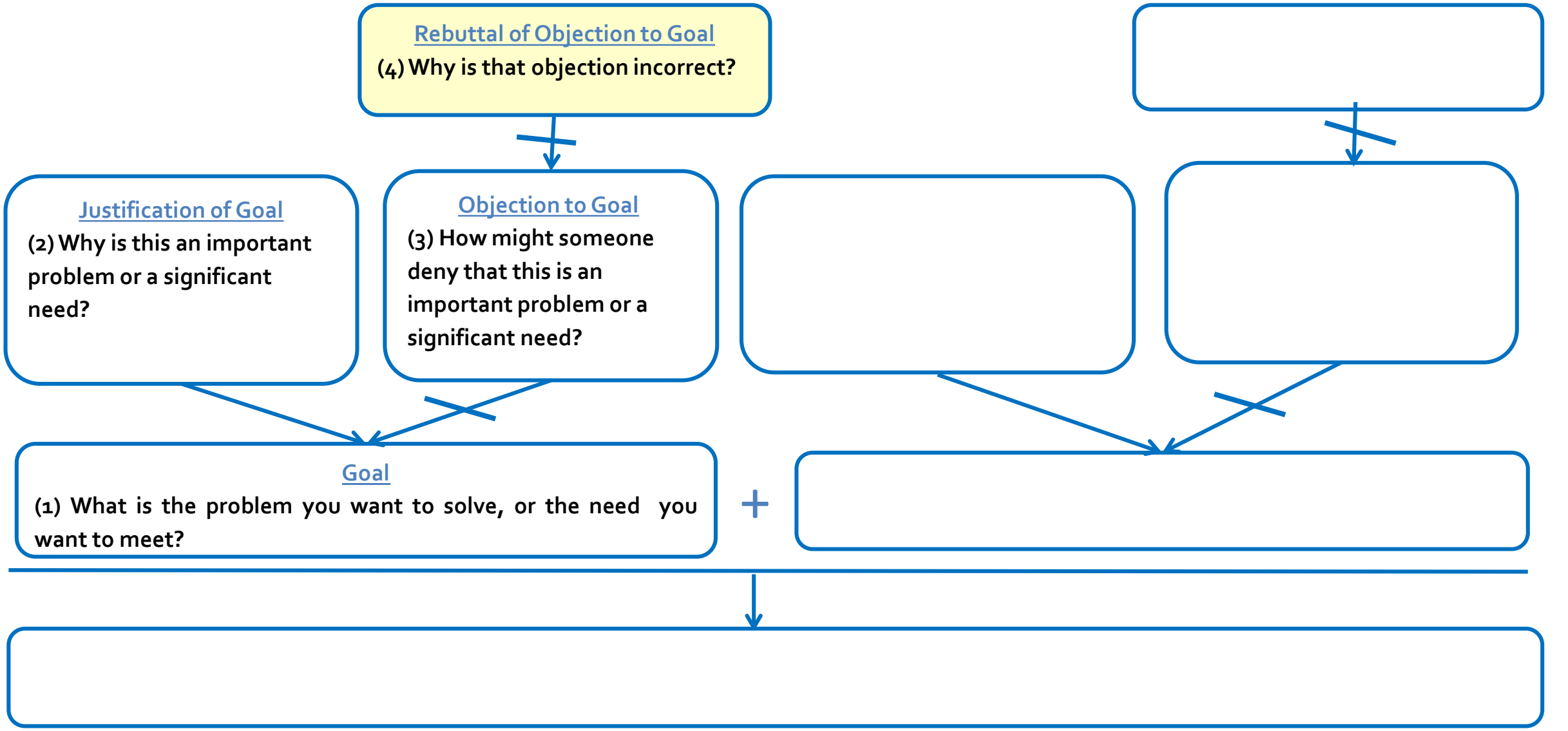

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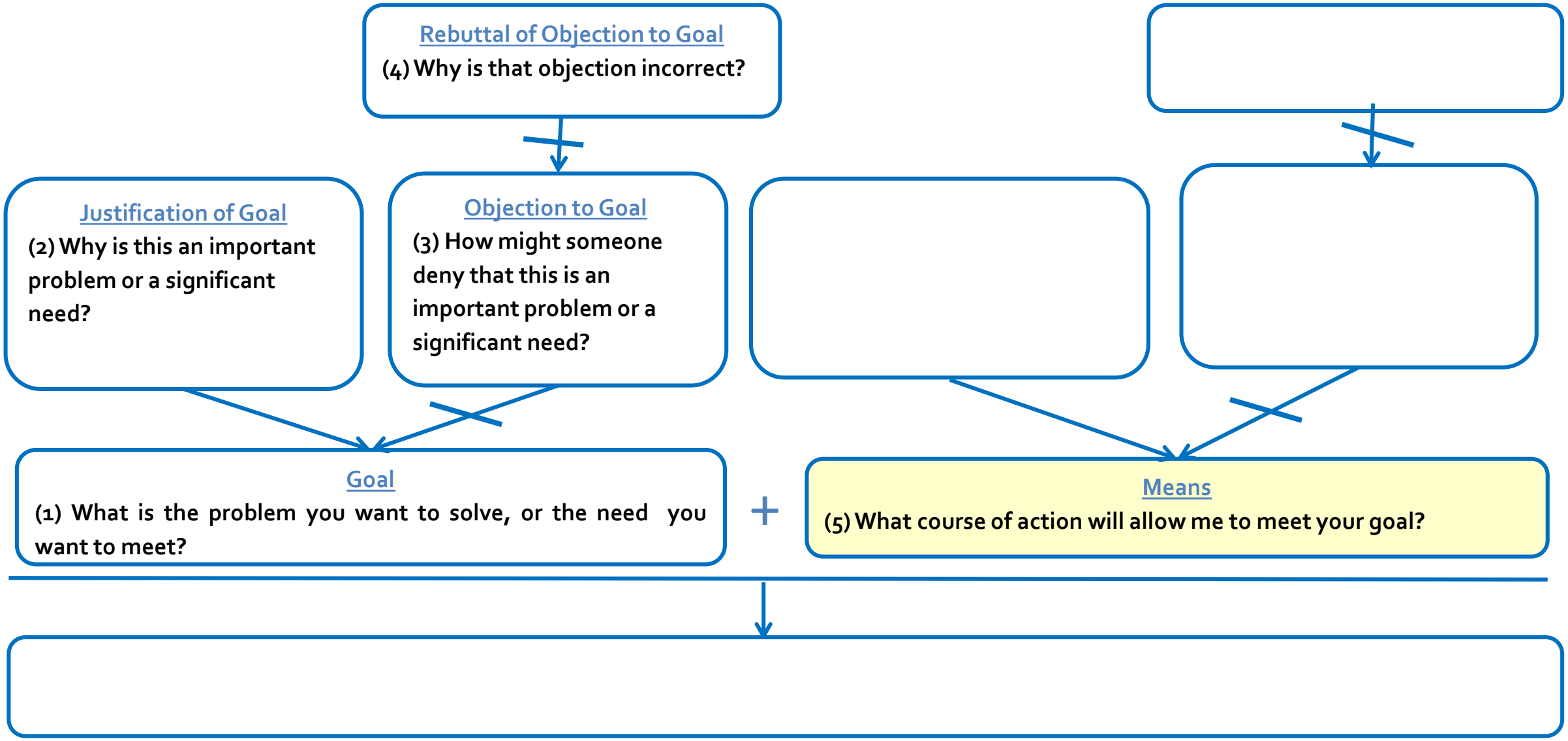

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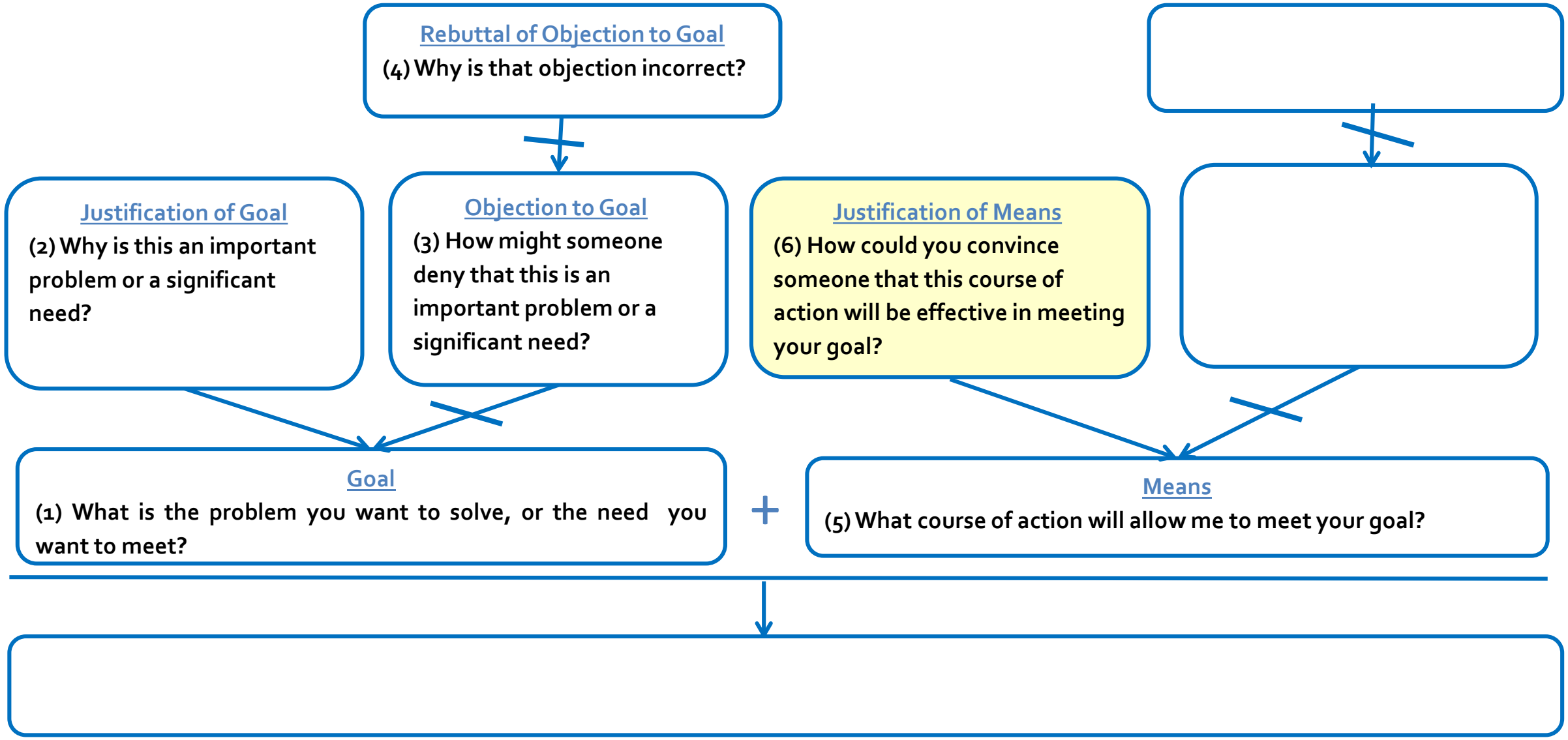

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Rebuttal of Objection to Goal
(4) Why is that objection incorrect?

Justification of Goal
(2) Why is this an important problem or a significant need?

Objection to Goal
(3) How might someone deny that this is an important problem or a significant need?

Justification of Means
(6) How could you convince someone that this course of action will be effective in meeting your goal?

Objection to Means
(7) How might someone deny that this course of action will be effective in meeting your goal?

Goal
(1) What is the problem you want to solve, or the need you want to meet?

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Means
(5) What course of action will allow me to meet your goal?

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Communicating an Argument: Using a Template

- Fill in the blanks with the corresponding ideas from the argument map.

"[RECOMMENDATION]. After all, [GOAL] because [JUSTIFICATION OF GOAL]. Of course, some might object to [GOAL] by saying [OBJECTION TO GOAL], but in fact, [REBUTTAL OF OBJECTION TO GOAL], so we may safely conclude that [GOAL] . [MEANS] because [JUSTIFICATION OF MEANS]. Some might disagree that [MEANS], asserting [OBJECTION TO MEANS]. Actually, though, [REBUTTAL OF OBJECTION TO MEANS]. In conclusion, because [GOAL] and [MEANS], [RECOMMENDATION]."

Constructing an Argument: Generative Procedure

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Question: Blah blah blah blah?

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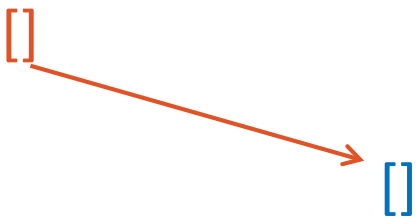

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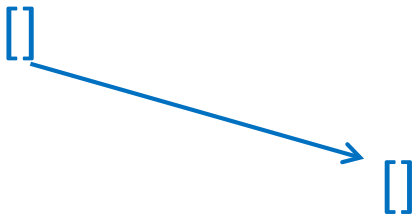

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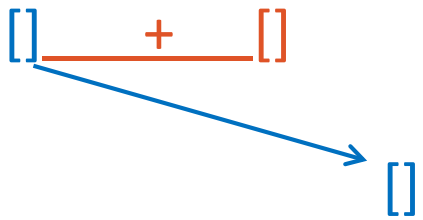

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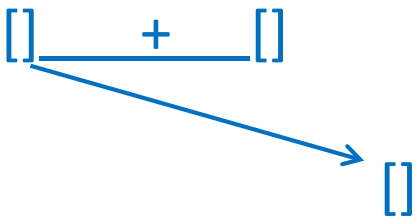

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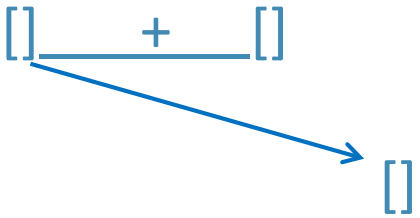

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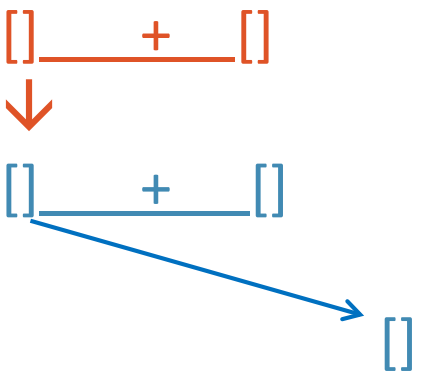

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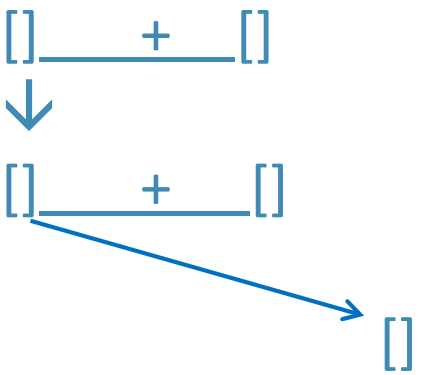

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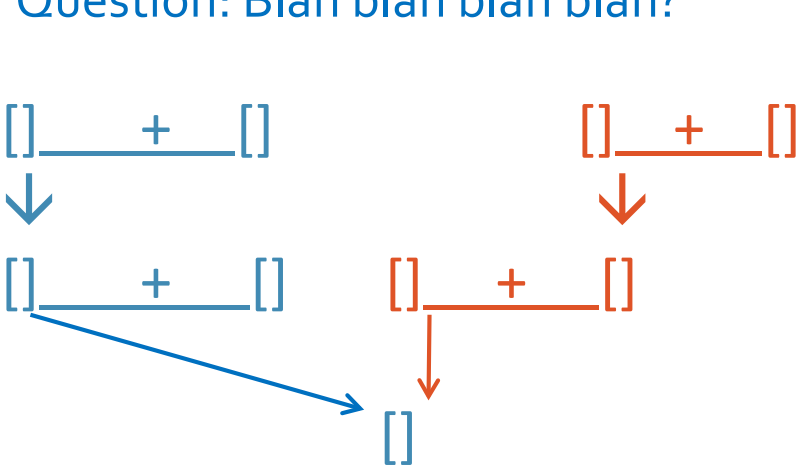

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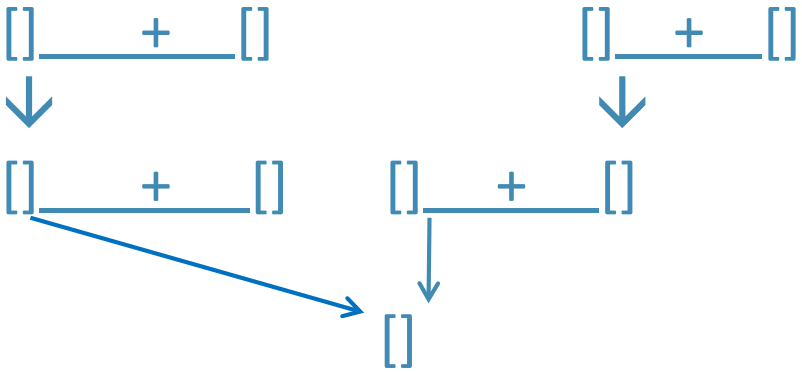

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REVIEW AND NEXT STEPS

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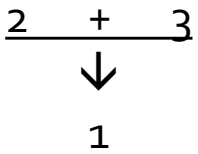
Tracking the Reasoning as you Encounter it

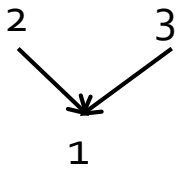
1. What's the main conclusion?
2. What's being asserted here?
   - This may involve dividing sentences into parts.
   - This may involve summarizing multiple sentences into a single claim.
3. Is that idea important?
4. If so, how is that idea related to what's gone before (other than the ultimate conclusion)?
   i. **Reason / Conclusion**
      - Inference indicator expressions help.
   ii. **Dependent Reason** (Ask "What follows from these ideas?" and fill in the subconclusion if it's missing.)
      - The Puzzle Piece Test helps.
   iii. **Independent Reason**
      - Identifying distinct themes helps.
   iv. **Objection to a Claim**
   v. **Objection to an Inference** (Objection to an Implicit Claim)
5. Return to 2.

"2. Online classes allows students to learn at times that are convenient for them. Therefore 1. they're perfect for working adults."

"1. Traditional college students should be discouraged from taking online courses. After all, 2. online courses retard social integration because 3. they can be completed without meeting other students in the class."



"2. Online classes allow students to work at their own pace and 3. students tend to learn better when they can work at their own pace so 1. online courses can enhance student learning."



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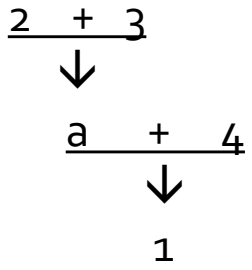

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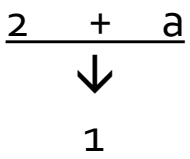

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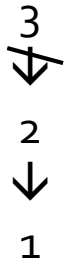

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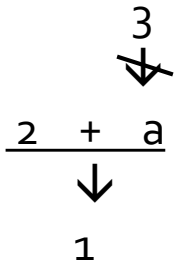

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If there is a claim you disagree with, ask:

1. "Is that claim part of the argument?" If not, ignore it.
2. "Is that claim taken for granted or is it supported by other claims?"
3. If the claim is taken for granted, ask
   3.1. "Is it true?"
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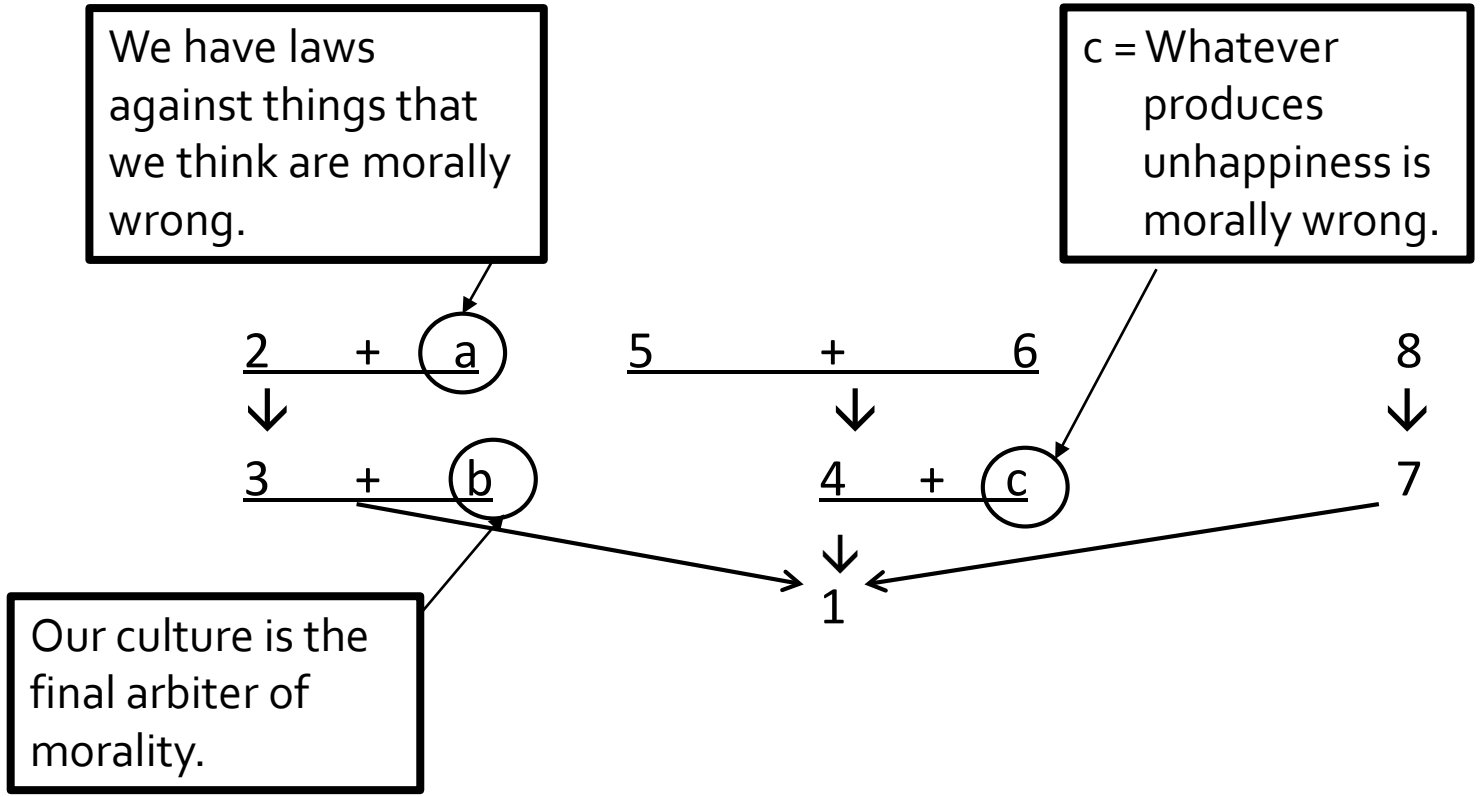

Constructing an Argument

3

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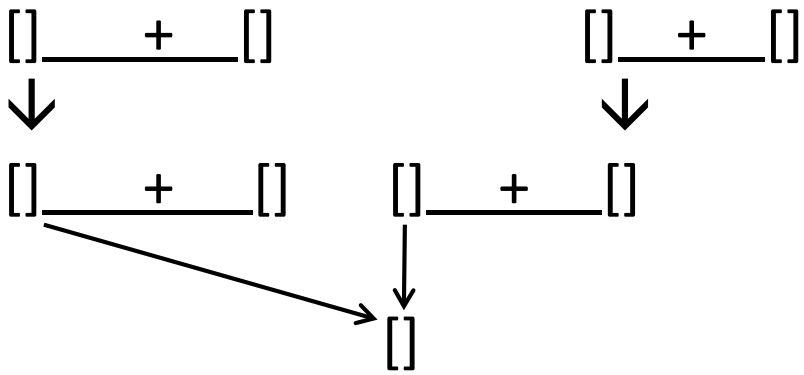

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Highly Defeasible Realizations

- Critical thinking is enhanced by mastering key mapping skills, including
  - Recognizing the relationships between the ideas in an argument.
  - Distinguishing between evaluating a reason and evaluating an inference ("That's not true." vs. "That doesn't matter.")
  - Identifying missing conclusions and missing assumptions (The Puzzle Piece Test).
  - Conceptualizing the structure of an argument before communicating it.
  - Internalizing a series of important questions.

- Key mapping skills can be developed without requiring students to map very much on their own, as long as instructors use mapping to model the critical thinking process.

- Reasoning "up" (procedurally starting with a conclusion, attempting to construct an argument in its support, and changing one's mind if necessary) is different than reasoning "down" (procedurally starting with premises and attempting to reason properly from those premises).

- Both reasoning up and reasoning down can be mapped.

Future Investigation

- Can the process of decision making, problem solving, and hypothesis formation be identified with reasoning down, and the process of justification be identified with reasoning up?

- Can we find a way of mapping reasoning down and reasoning up that is
  - specific enough to help students gain proficiency in the type of reasoning that characterizes a discipline
  - general enough to apply across disciplines and so help students to transfer their learning from one subject to another
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Discovery (Reasoning Down)

Constructing an Argument

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Observation

1. Amphipods carry sea butterflies on their backs.
2. Amphipods who lost their sea butterfly would quickly find another sea butterfly
3. Amphipods carrying sea butterflies move much slower than amphipods without sea butterflies

Question

Why do amphipods carry sea butterflies, especially given that sea butterflies slow down the amphipods thus making them more vulnerable to predators?

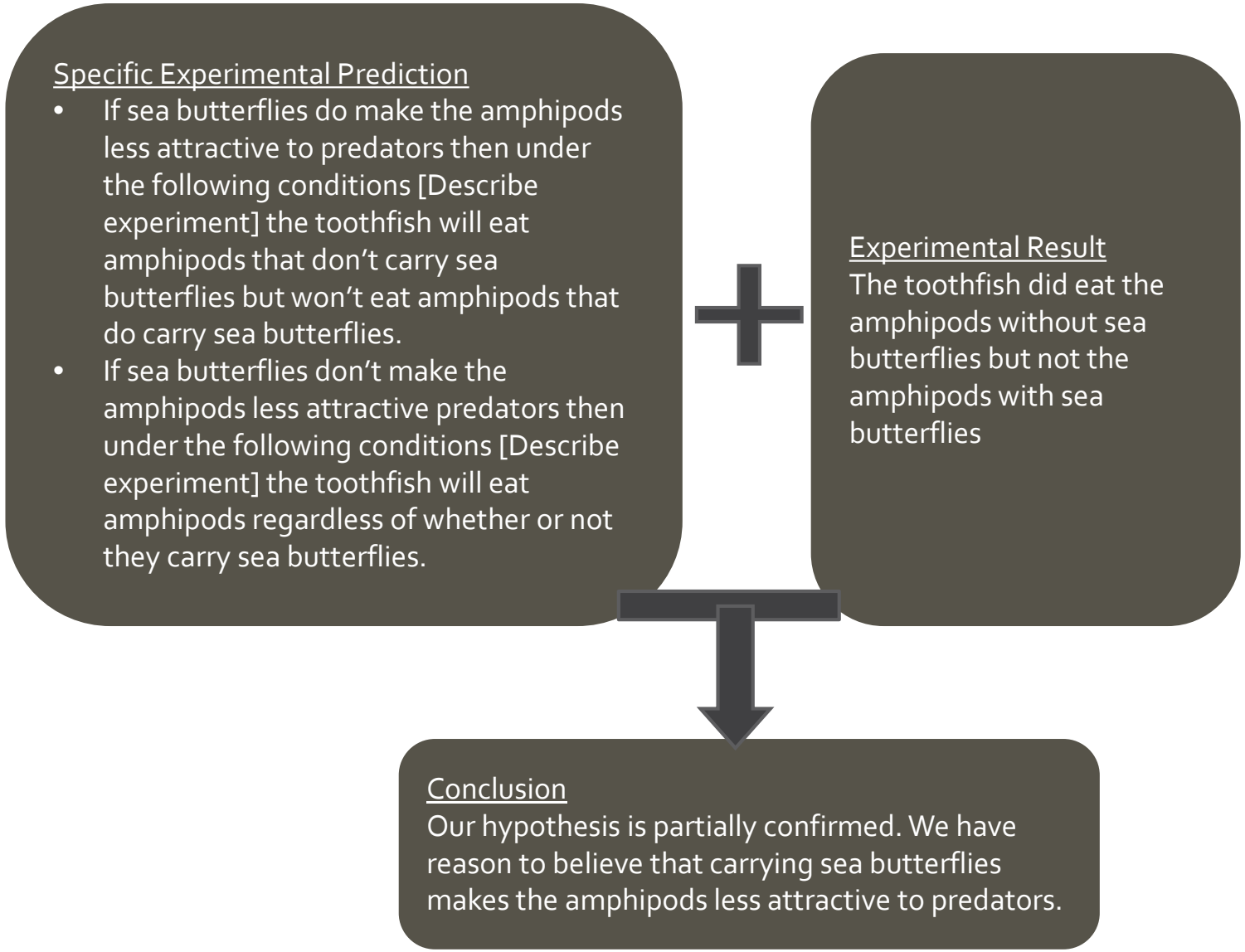
Background Knowledge

Behaviors often help a species avoid predators.

Hypothesis

The sea butterflies makes the amphipods less attractive to predators.

Justification (Reasoning Up)



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Partially Confirmed Hypothesis
We have reason to believe that carrying sea butterflies makes the amphipods less attractive to predators.

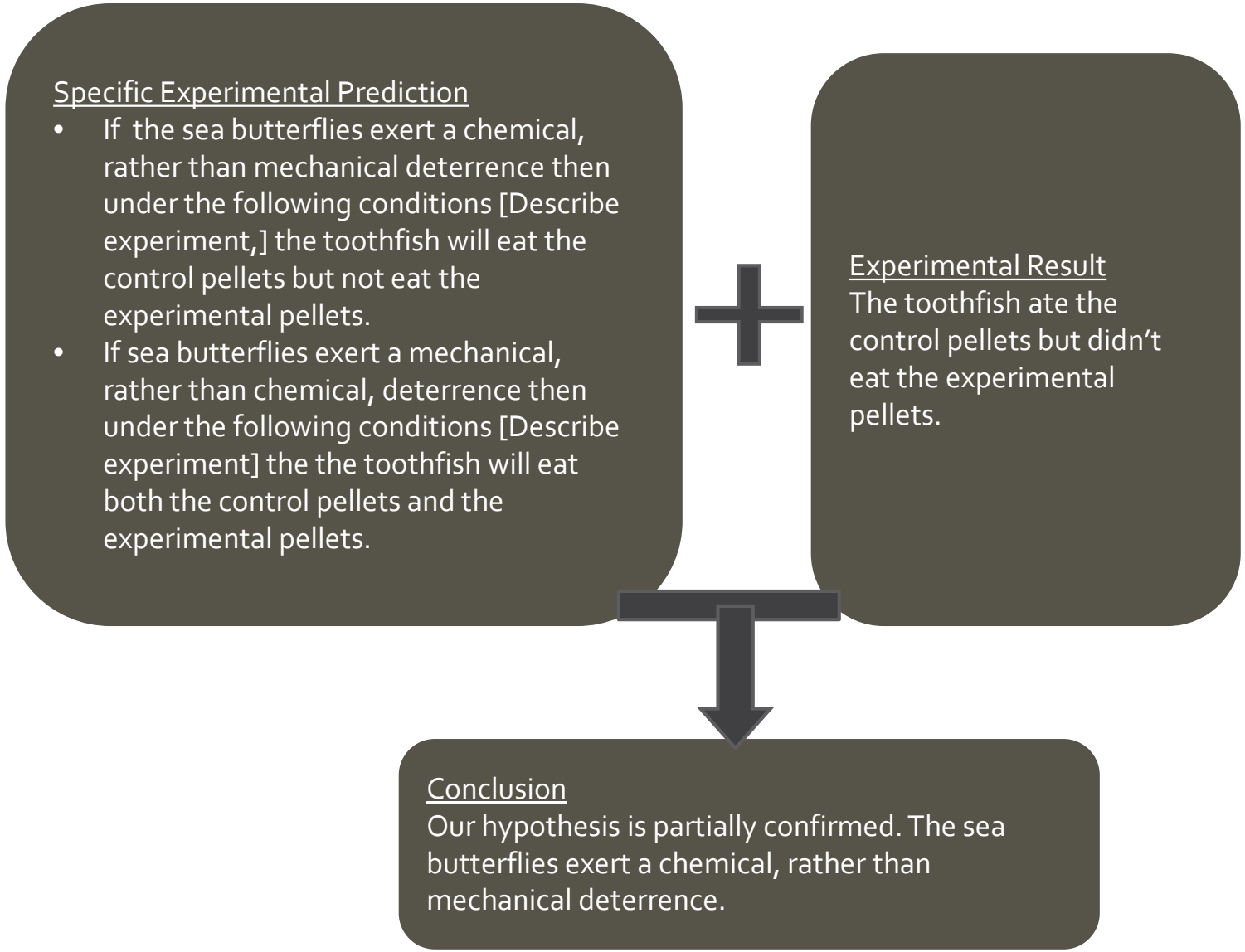
Question
How do sea butterflies make amphipods more vulnerable to predators?

+

Background Knowledge
Deterrence can be chemical or physical. There are many examples of chemical deterrence in marine organisms.

Hypothesis
The sea butterflies exert a chemical, rather than mechanical deterrence.

Justification (Reasoning Up)



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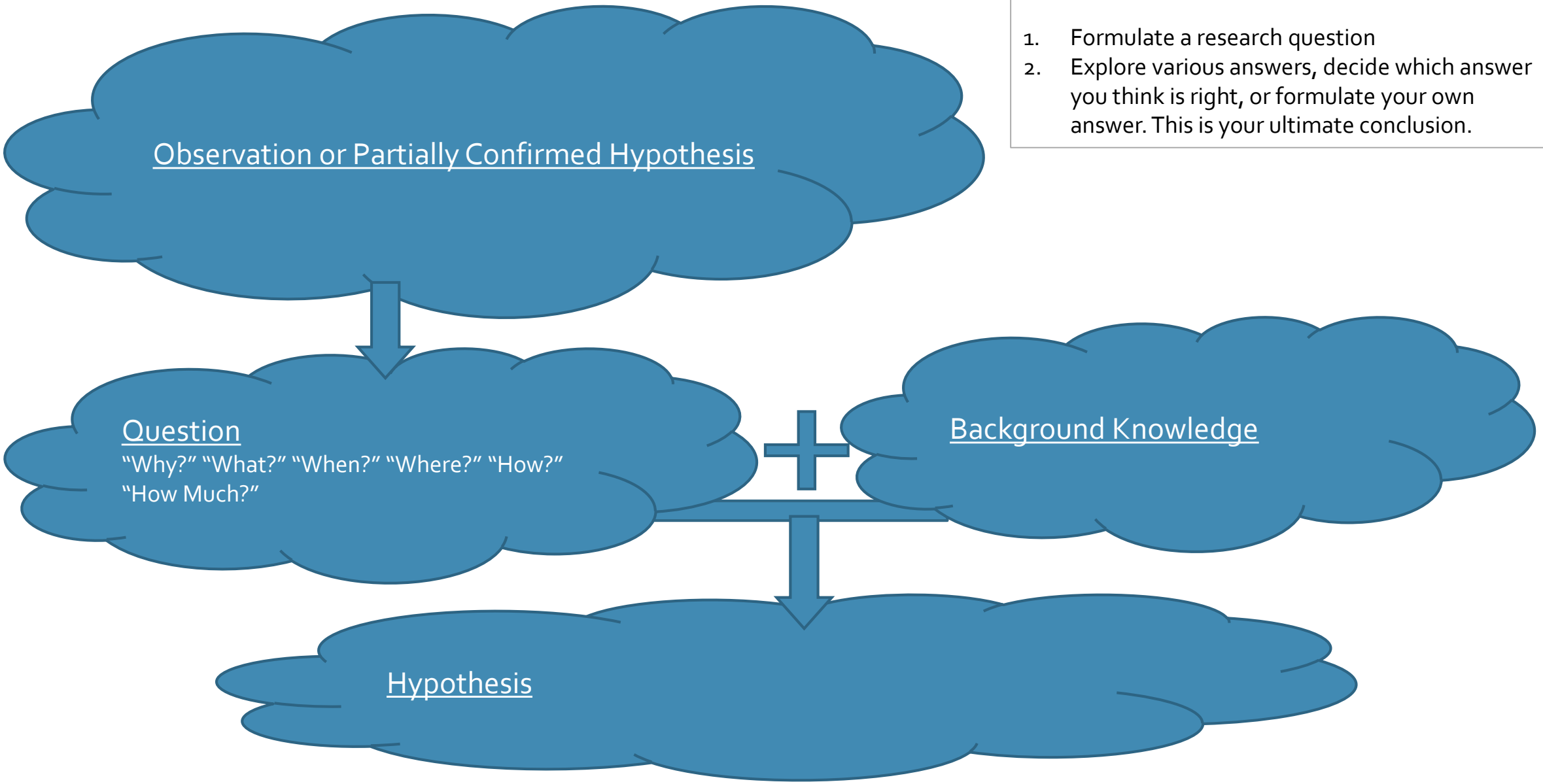

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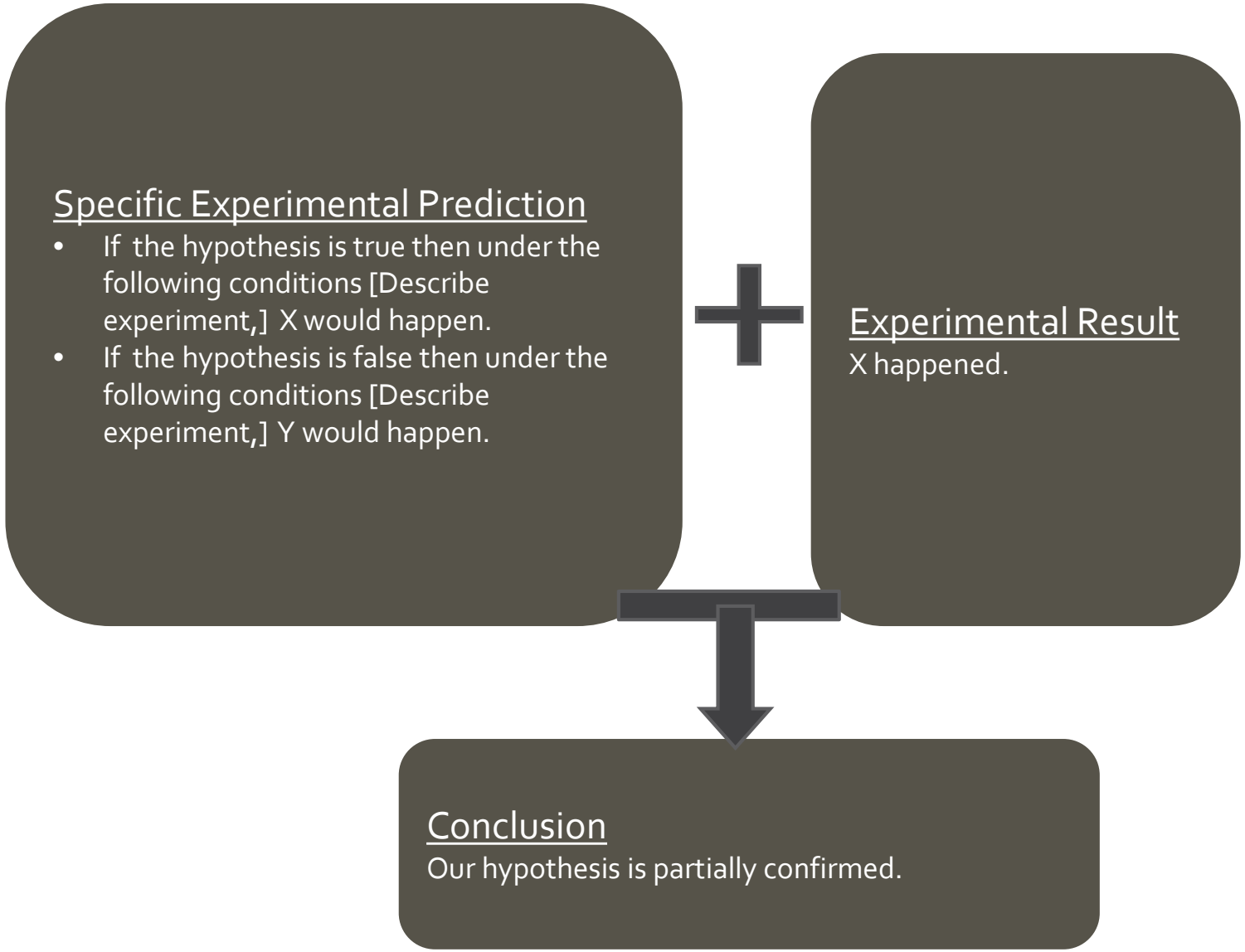

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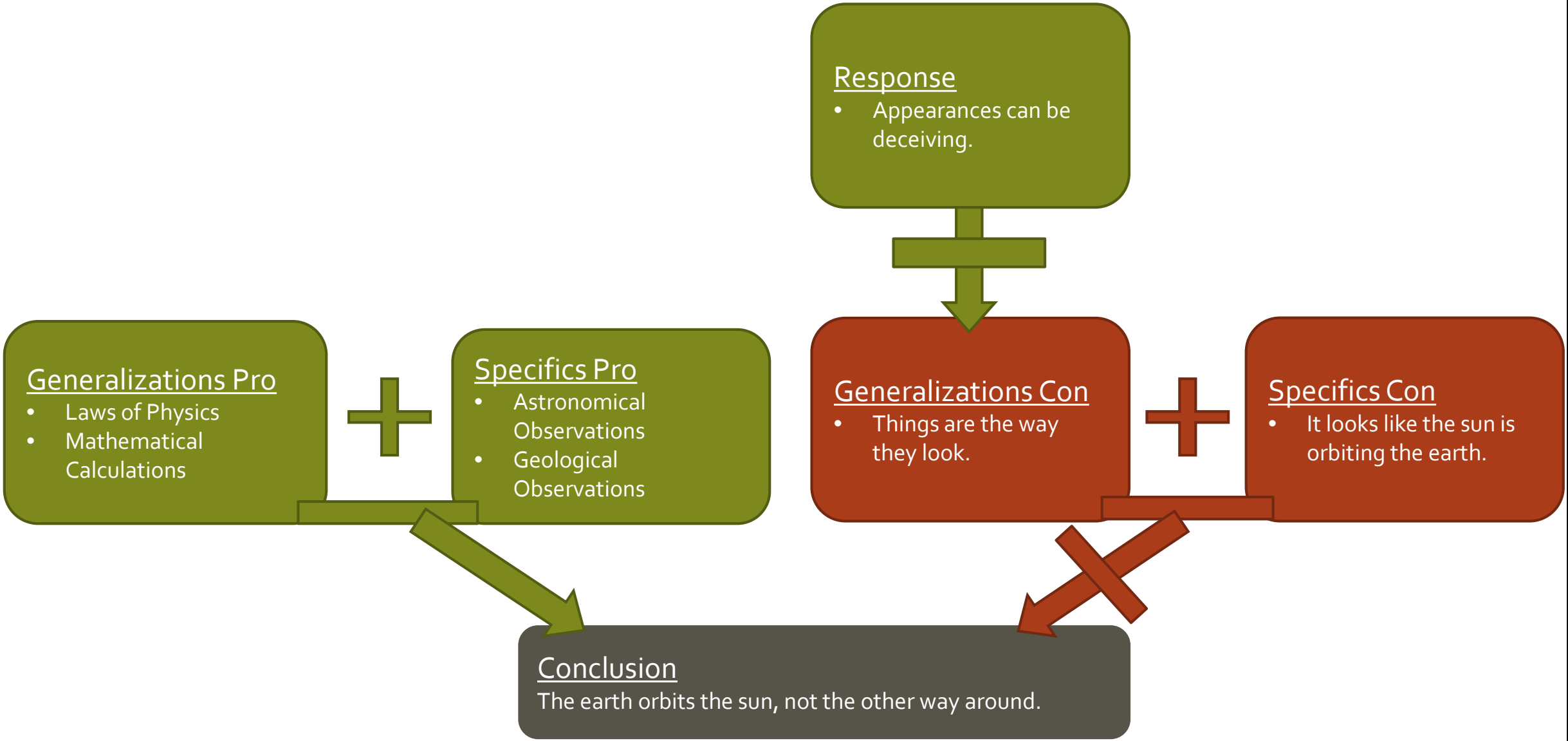

REVIEW AND NEXT STEPS

Dona Warren

UW – Stevens Point

Tracking the Reasoning as you Encounter it

1. What's the main conclusion?
2. What's being asserted here?
   - This may involve dividing sentences into parts.
   - This may involve summarizing multiple sentences into a single claim.
3. Is that idea important?
4. If so, how is that idea related to what's gone before (other than the ultimate conclusion)?
   i. **Reason / Conclusion**
      - Inference indicator expressions help.
   ii. **Dependent Reason** (Ask "What follows from these ideas?" and fill in the subconclusion if it's missing.)
      - The Puzzle Piece Test helps.
   iii. **Independent Reason**
      - Identifying distinct themes helps.
   iv. **Objection to a Claim**
   v. **Objection to an Inference** (Objection to an Implicit Claim)
5. Return to 2.

"2. Online classes allows students to learn at times that are convenient for them. Therefore 1. they're perfect for working adults."

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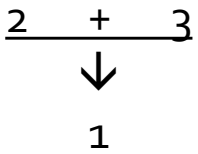

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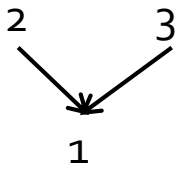

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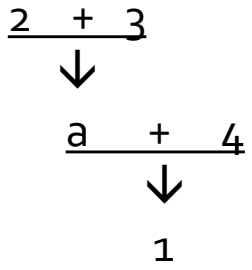

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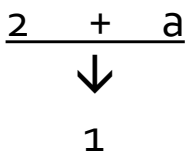

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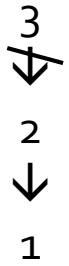

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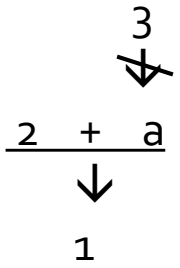

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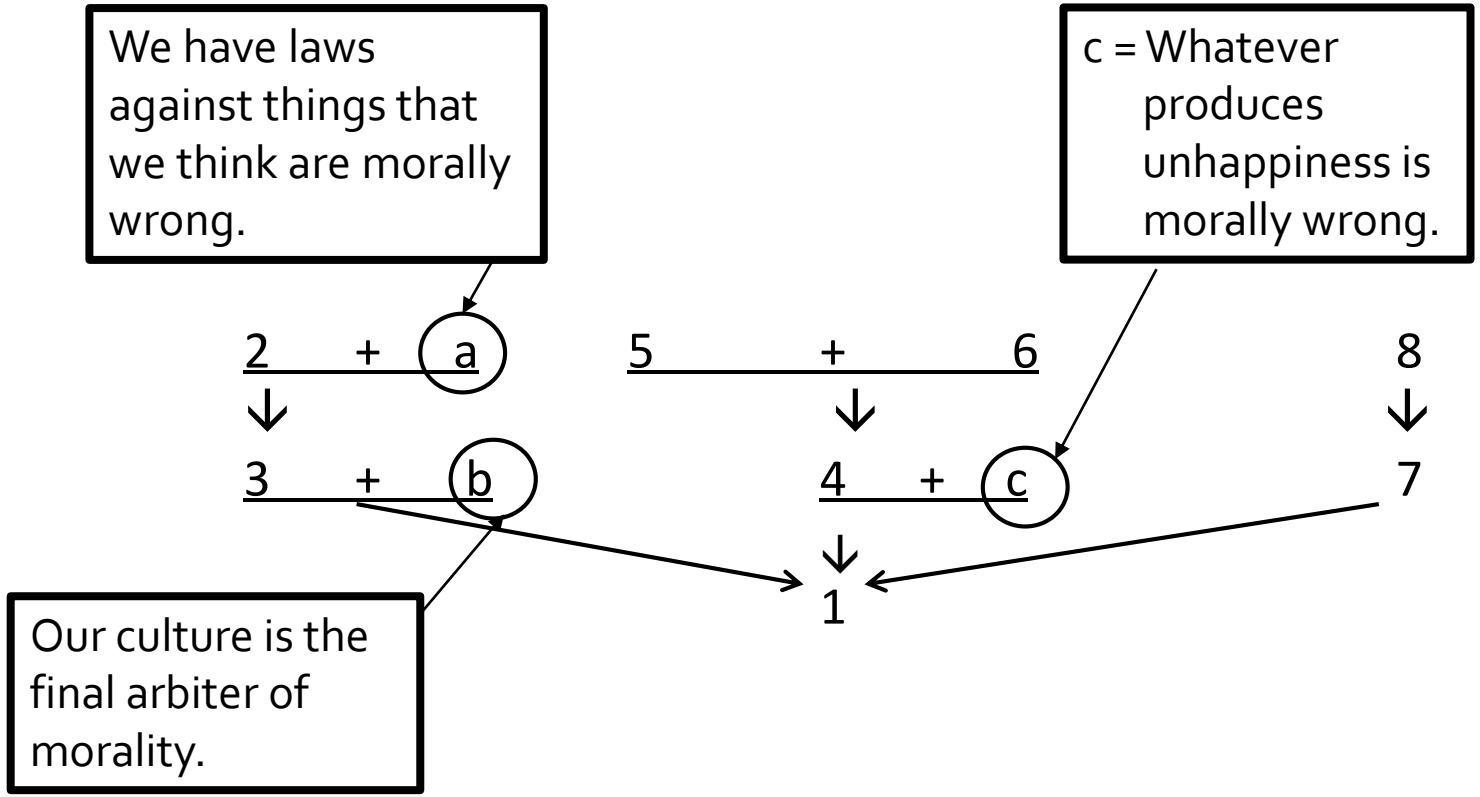

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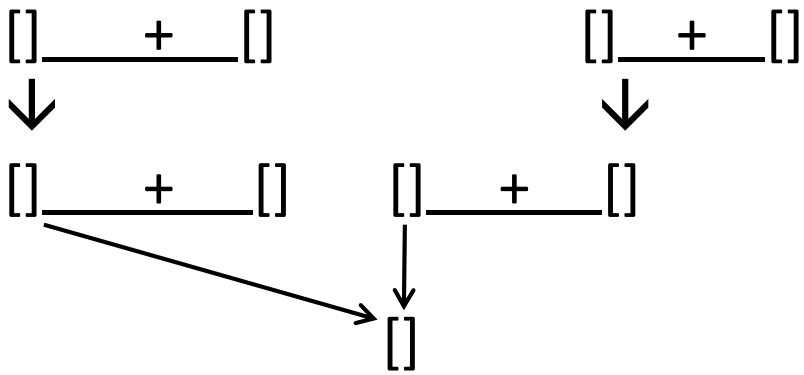

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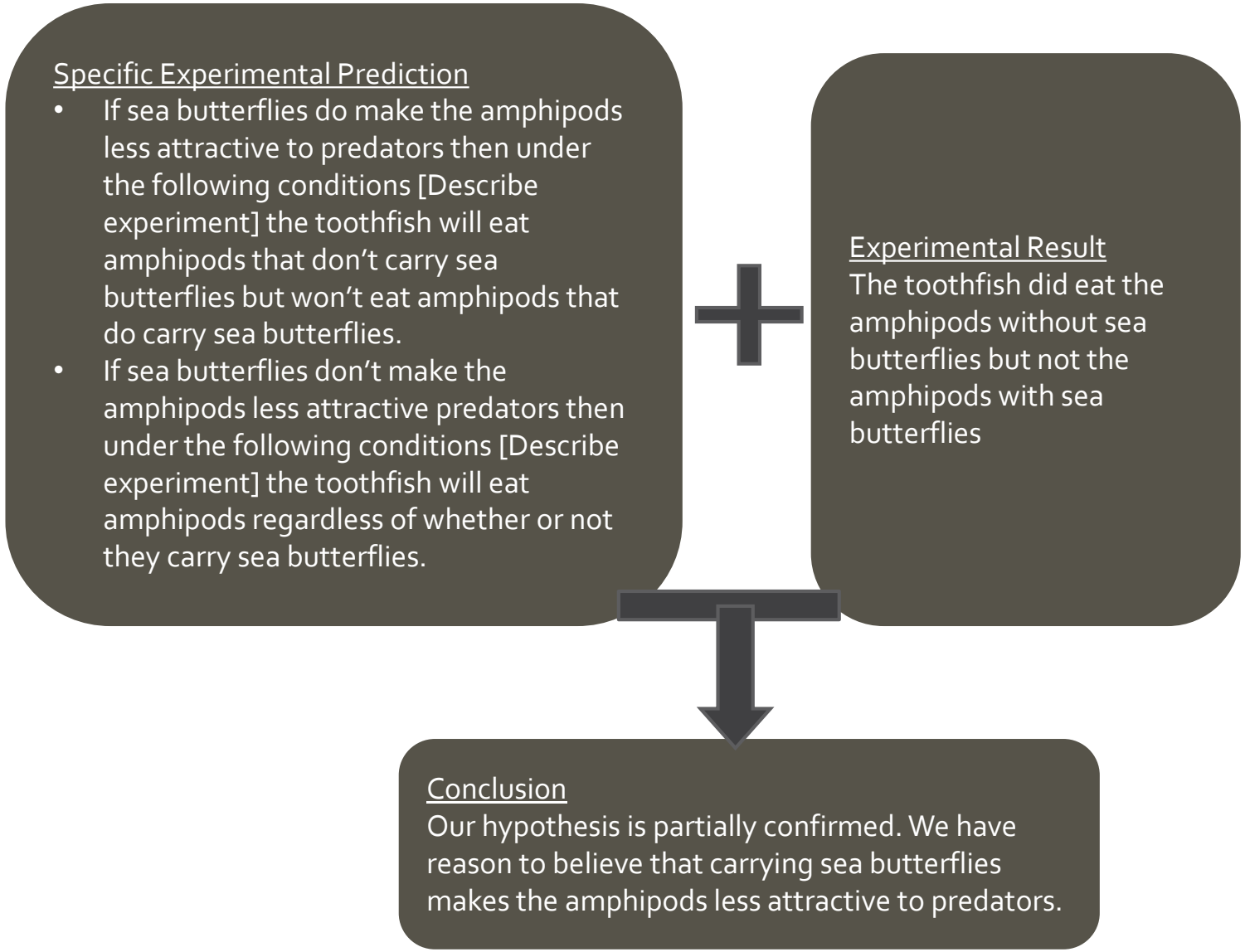

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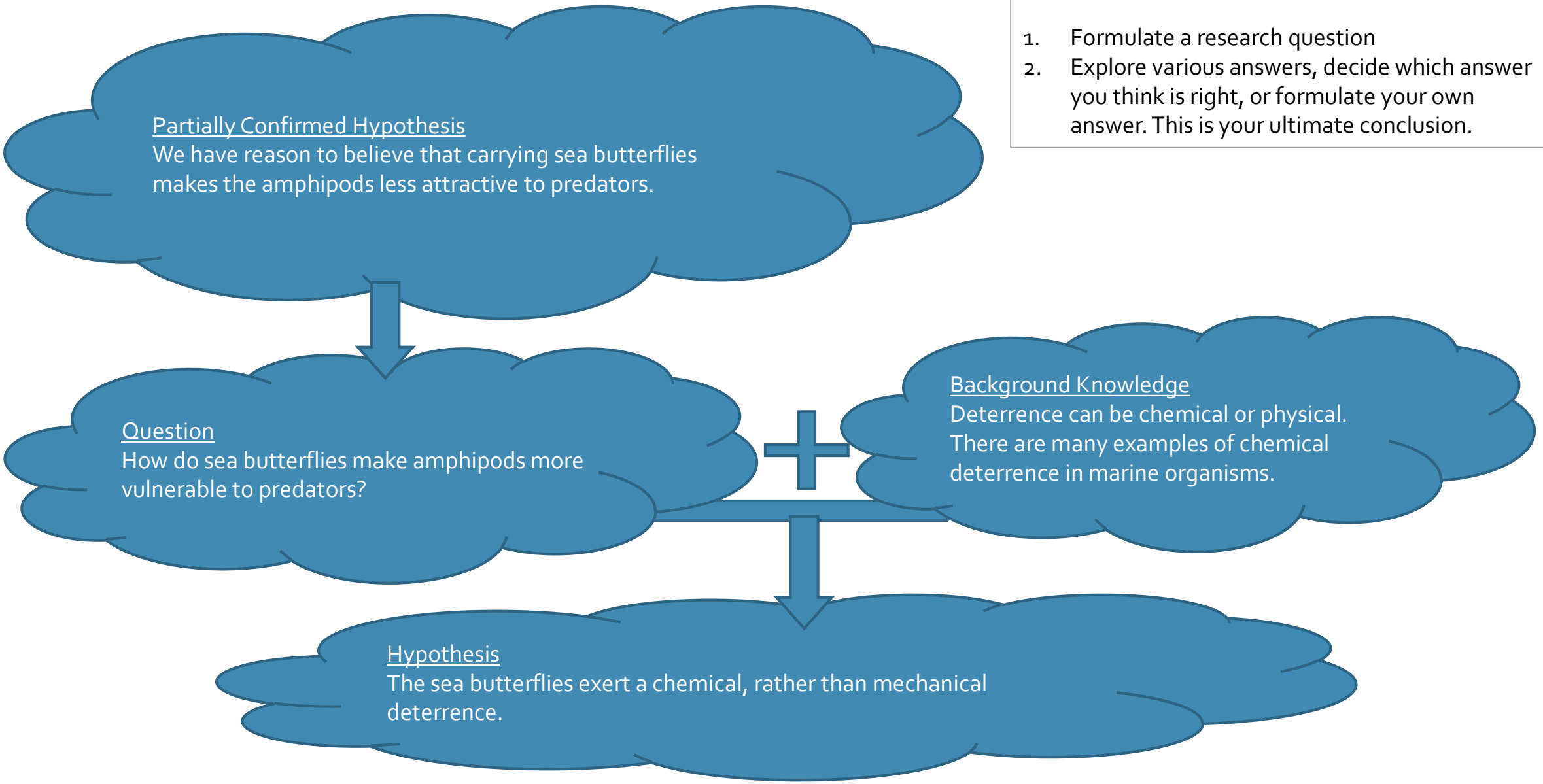

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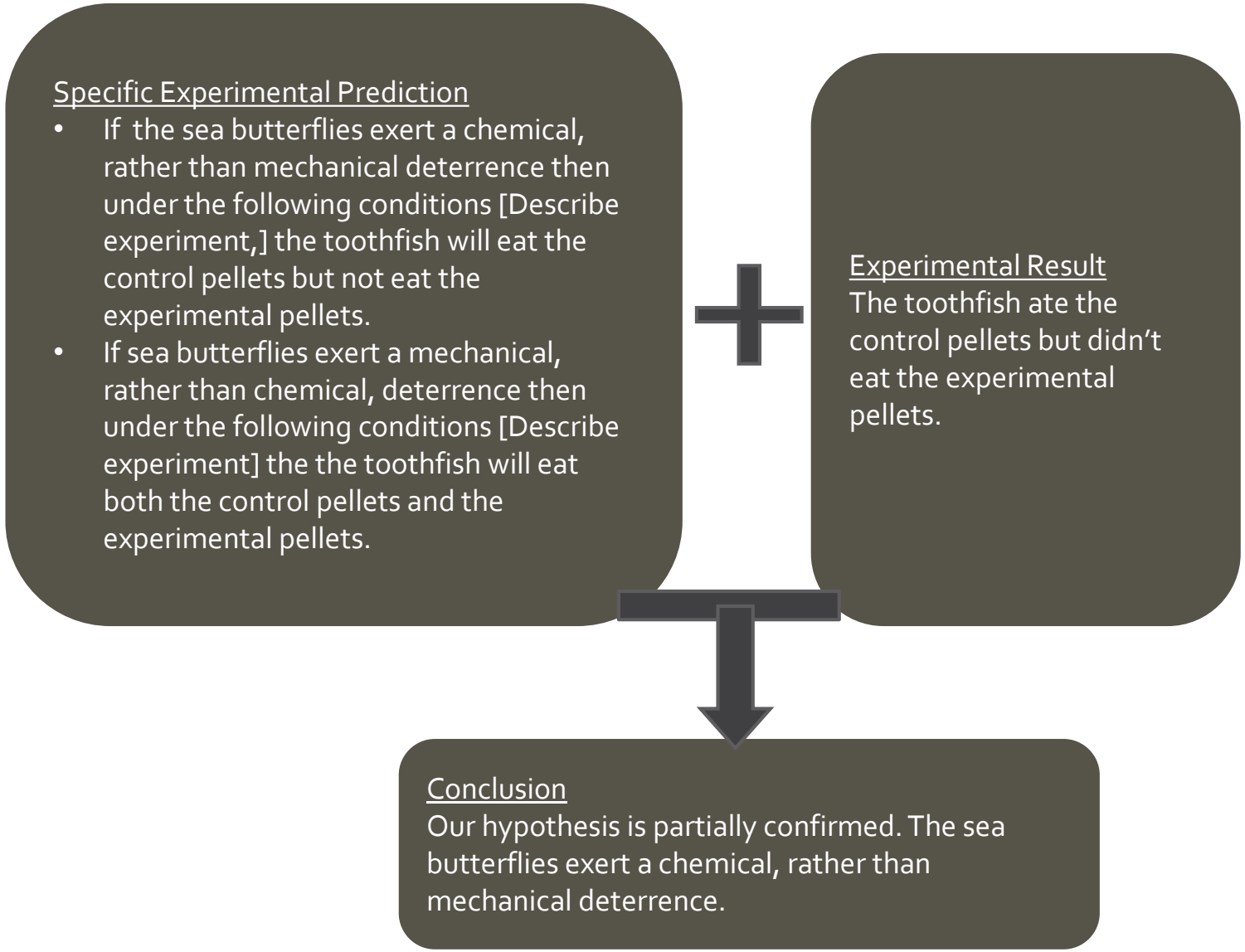
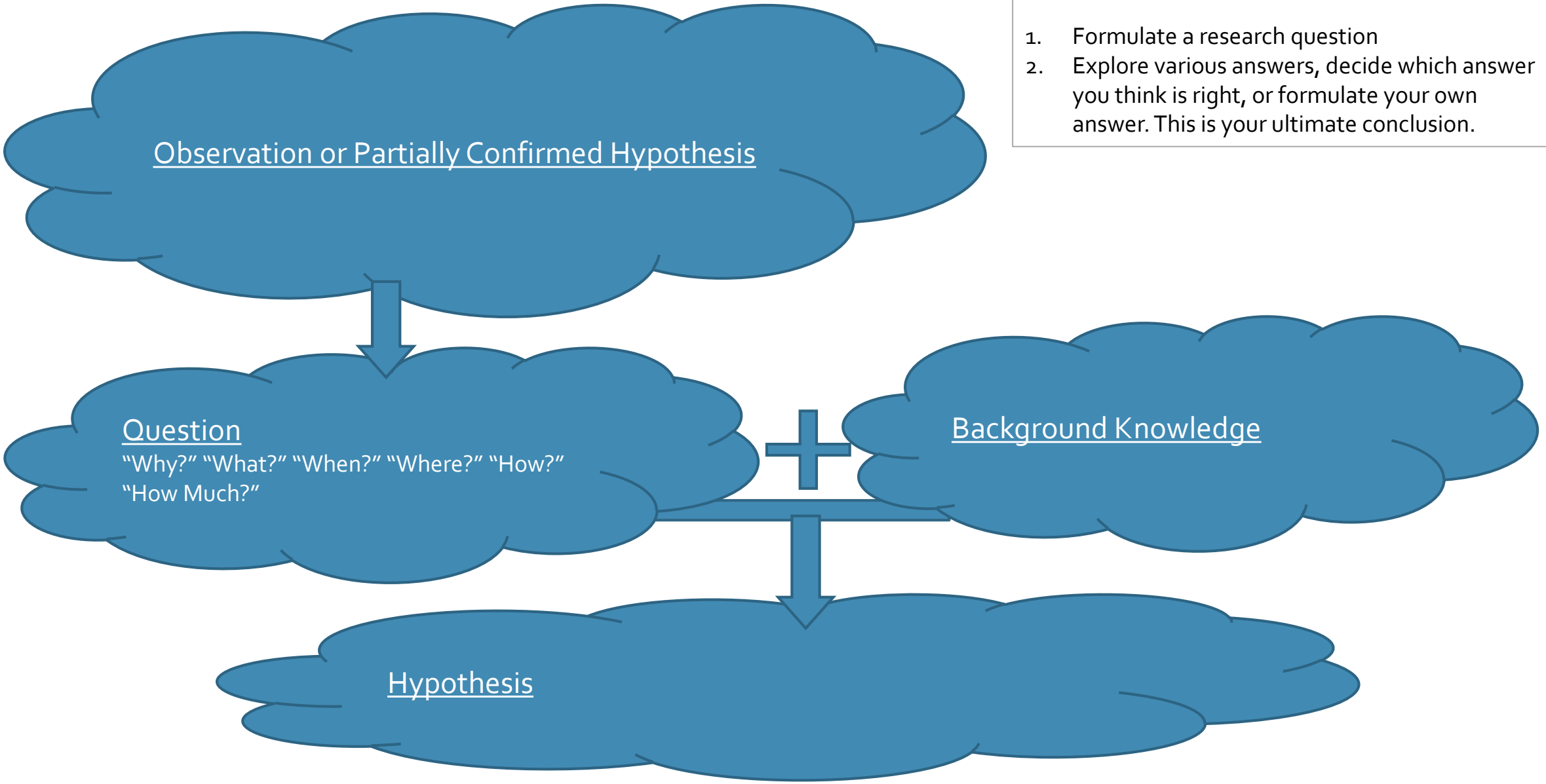
Justification (Reasoning Up)



Constructing an Argument

3. Construct one Line of Reasoning
   a. What's a reason to believe your ultimate conclusion?
   b. What needs to be assumed in order for the conclusion to follow from this reason?
   c. Consider the claims identified in '3a' and '3b'. Are these claims true? If not, revise them, ensuring that the conclusion still follows.
      - Note: If you can't do this, this line of reasoning fails. If all lines of reasoning fail, the argument fails. If the argument fails, you may want to reconsider your answer. If all answers fail, you might want to reconsider your question.
4. Construct another Line of Reasoning
   a. Identify the theme(s) of your existing line(s) of reasoning. Is there another sort of reason to believe your ultimate conclusion? If so, identify that reason. Return to 3b.

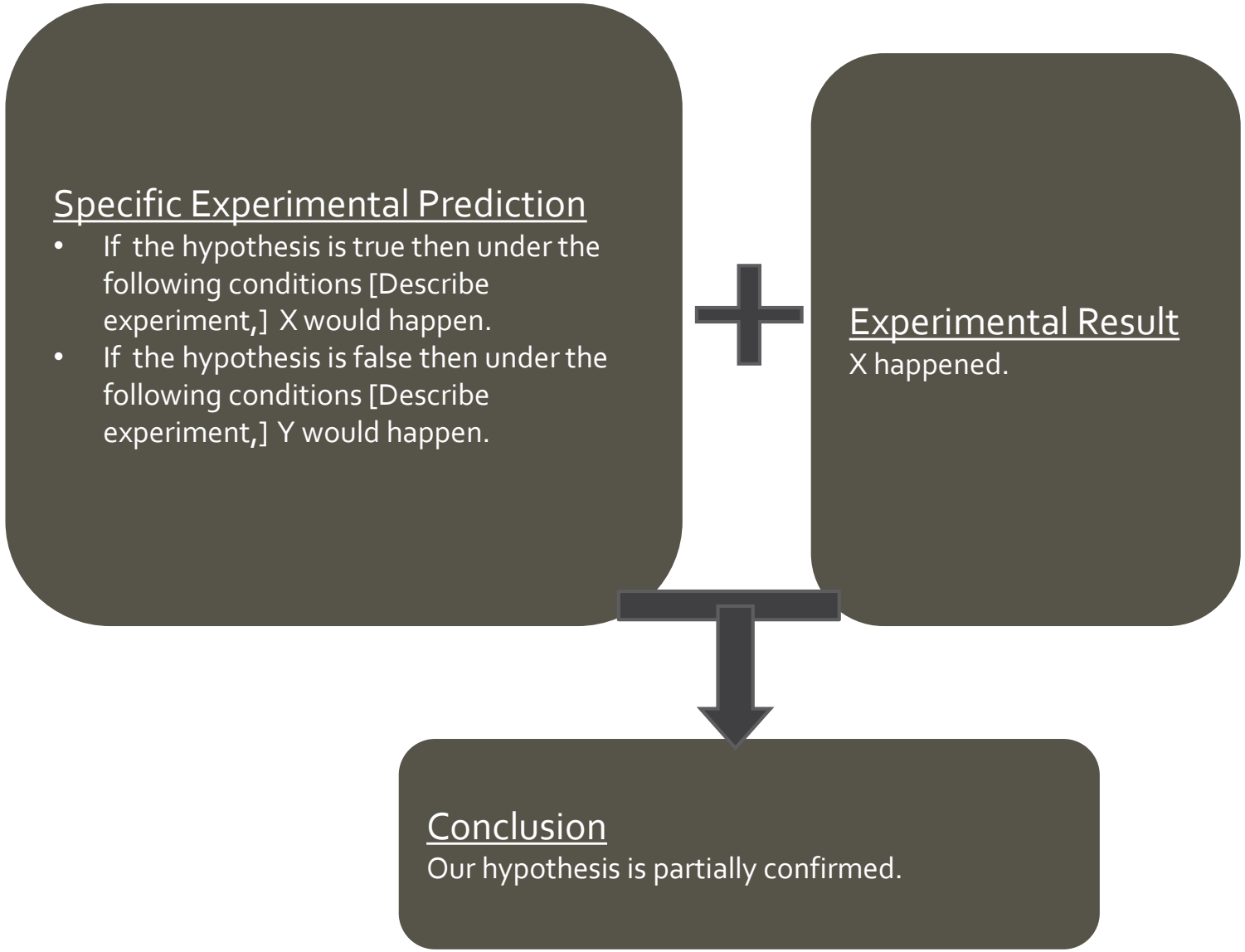
Discovery (Reasoning Down)



Constructing an Argument

1. Formulate a research question
2. Explore various answers, decide which answer you think is right, or formulate your own answer. This is your ultimate conclusion.

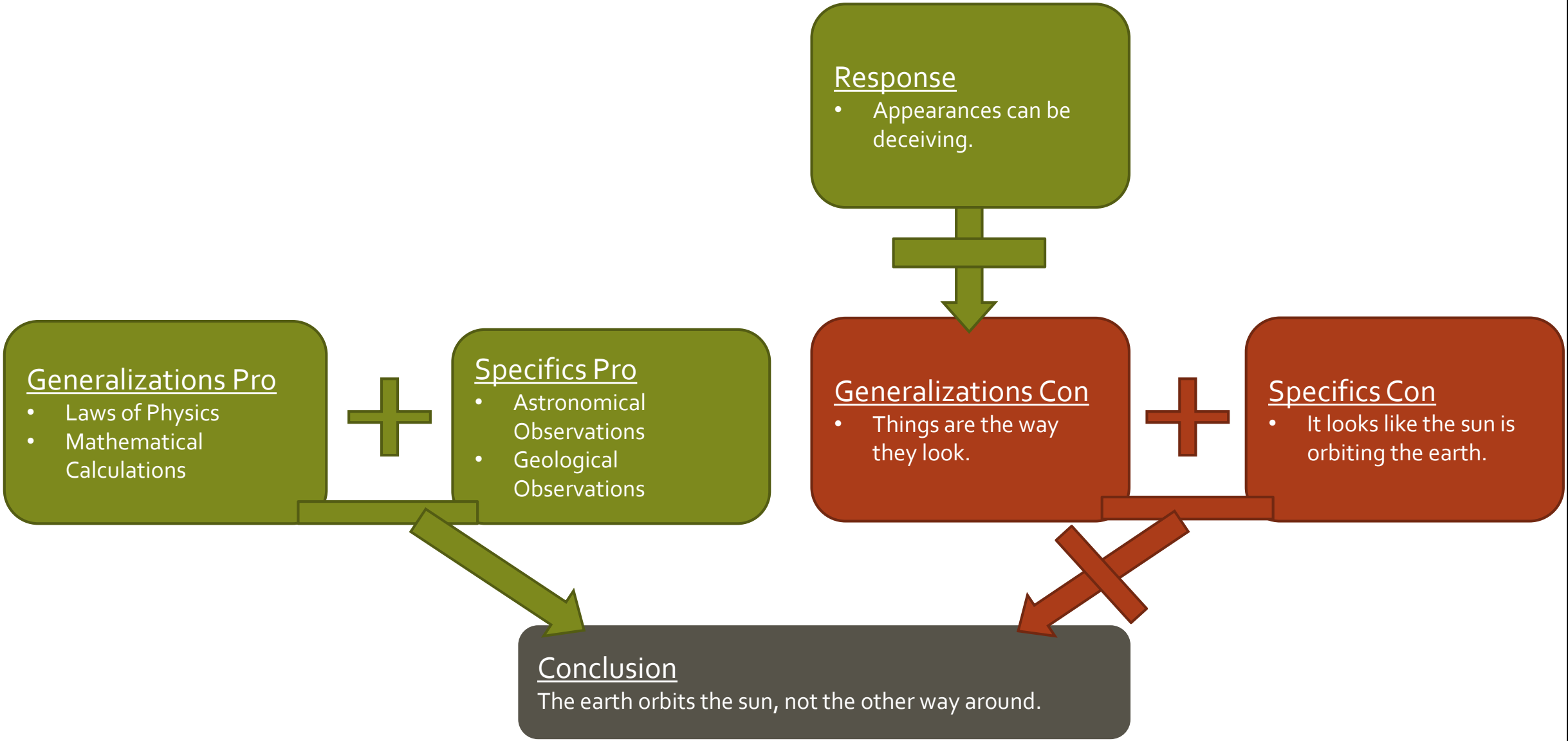
Justification (Reasoning Up)



Constructing an Argument

3. Construct one Line of Reasoning
    a. What's a reason to believe your ultimate conclusion?
    b. What needs to be assumed in order for the conclusion to follow from this reason?
    c. Consider the claims identified in '3a' and '3b'. Are these claims true? If not, revise them, ensuring that the conclusion still follows.
        - Note: If you can't do this, this line of reasoning fails. If all lines of reasoning fail, the argument fails. If the argument fails, you may want to reconsider your answer. If all answers fail, you might want to reconsider your question.
4. Construct another Line of Reasoning
    a. Identify the theme(s) of your existing line(s) of reasoning. Is there another sort of reason to believe your ultimate conclusion? If so, identify that reason. Return to 3b.

Justification (Reasoning Up)



Participants of FEG Meeting on 5/5/17		
First Name:	**Last Name:**	**Department:**
Sarah Jane	Alger	Biology
Elia	Armacanqui-Tipac	World Languages & Lit.
Valerie	Barske	History and International Studies
Tobias	Barske	World Languages
Agnes	Bolinska	Philosophy
Kym	Buchanan	Education
Chris	Cirmo	Dean of Letters and Science
Dave	Dettman	Library
Taylor	Easum	History and International Studies
Jonah	Elrod	Music
Todd	Huspeni	Academic Affairs
Vera	Klekovkina	WLL
Dejan	Kuzmanovic	English
Cuiting	Li	HPHD
Nancy	LoPatin-Lummis	University College, History
Lynn	Ludwig	English
Shanny	Luft	Philosophy
Wade	Mahon	English
Elizabeth	Martin	Bus-Econ
Ismaila	Odogba	Geography/Geology
Jodi	Olmsted	SHCP
Justin	Rueb	Psychology
Krista	Slemmons	Biology
Pam	Terrell	CSD
Dona	Warren	Philosophy
Trish	Zdroik	Communication
5/2/2017		