Sharing Skepticism and Arguing Constructively in Math Class

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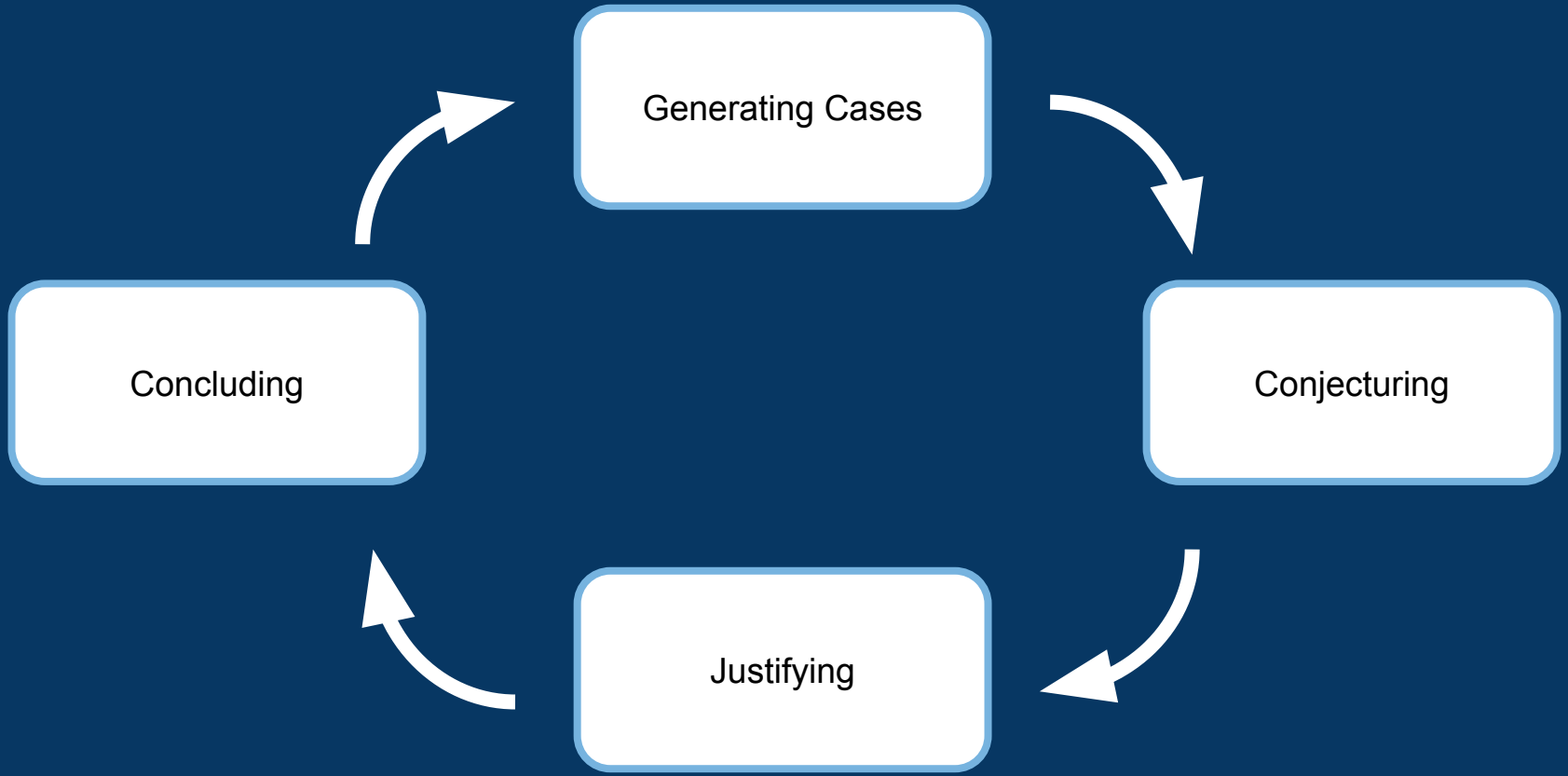
Goals:

1. Participants experience an instructional routine.
2. Participants can explain how the routine supports students getting better at constructing arguments.



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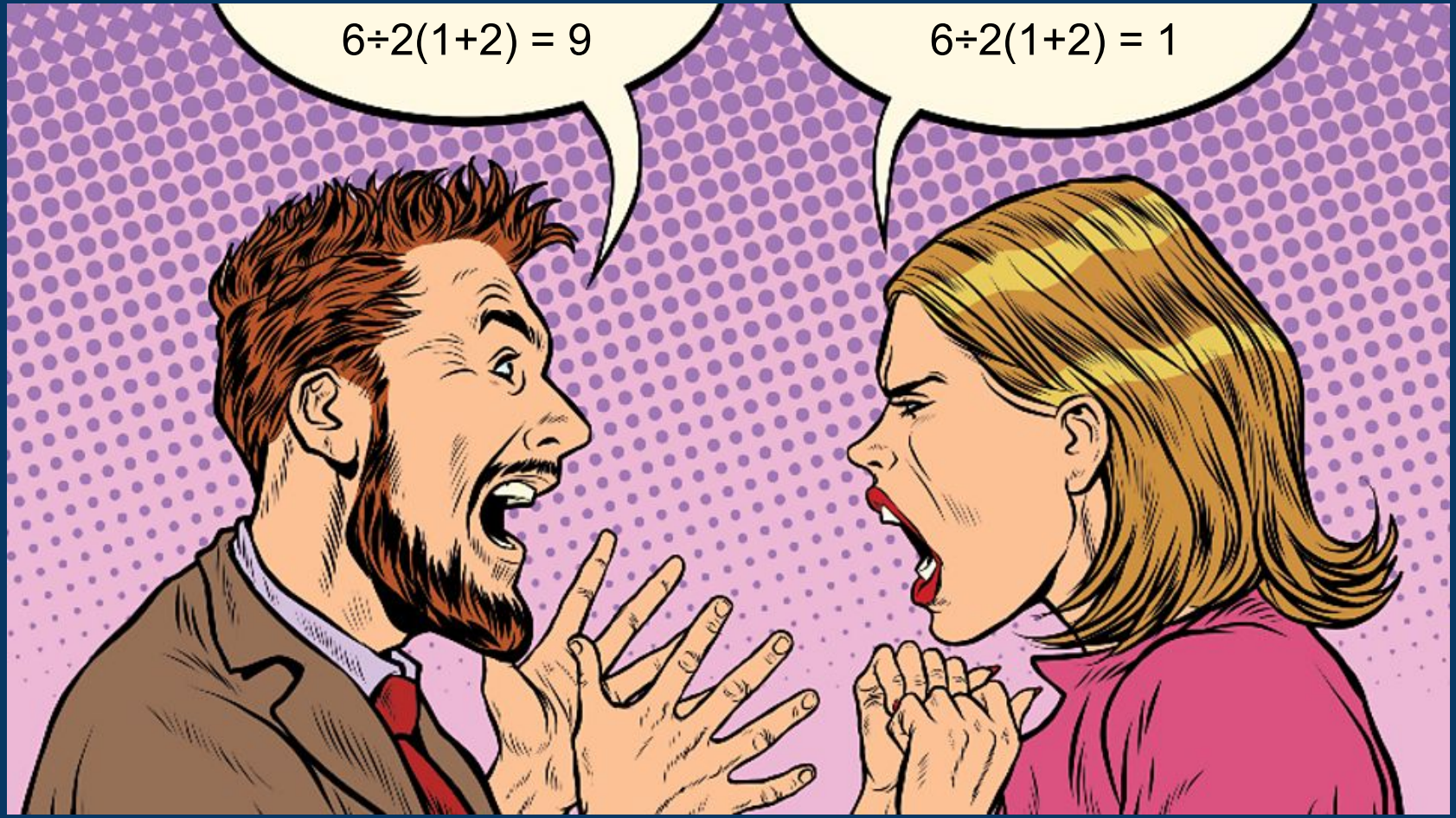

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Sharing Skepticism

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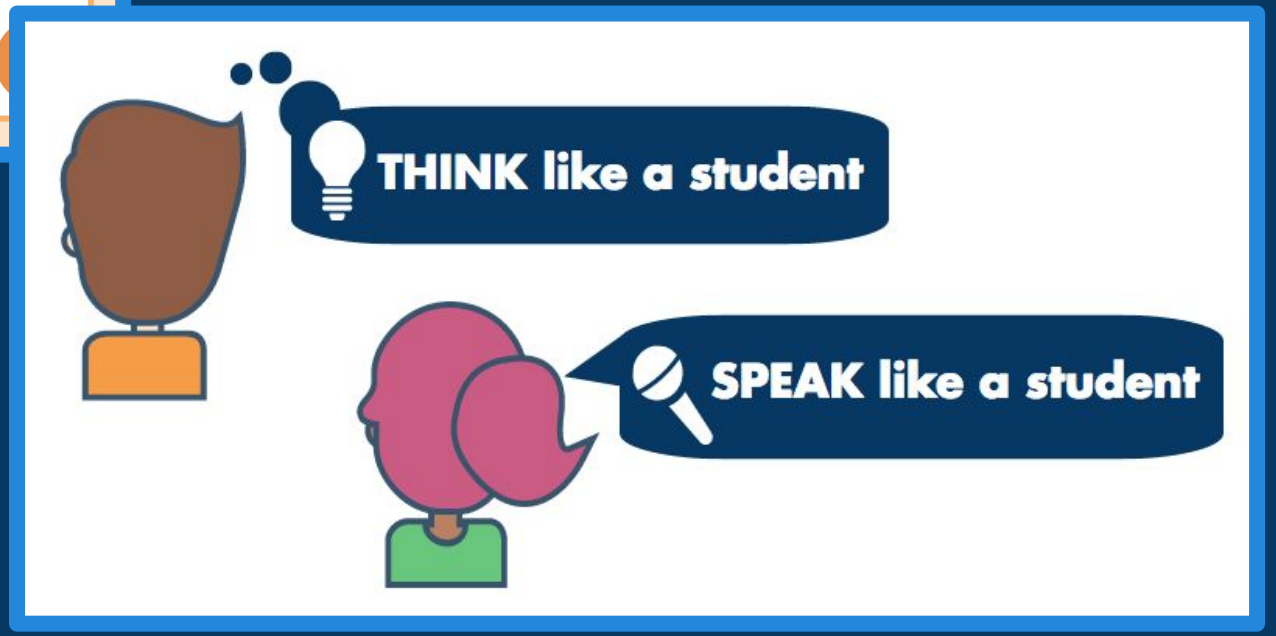
WHAT: To see the structure of expressions.

WHY: To "*argue like a mathematician*", to construct and critique arguments.



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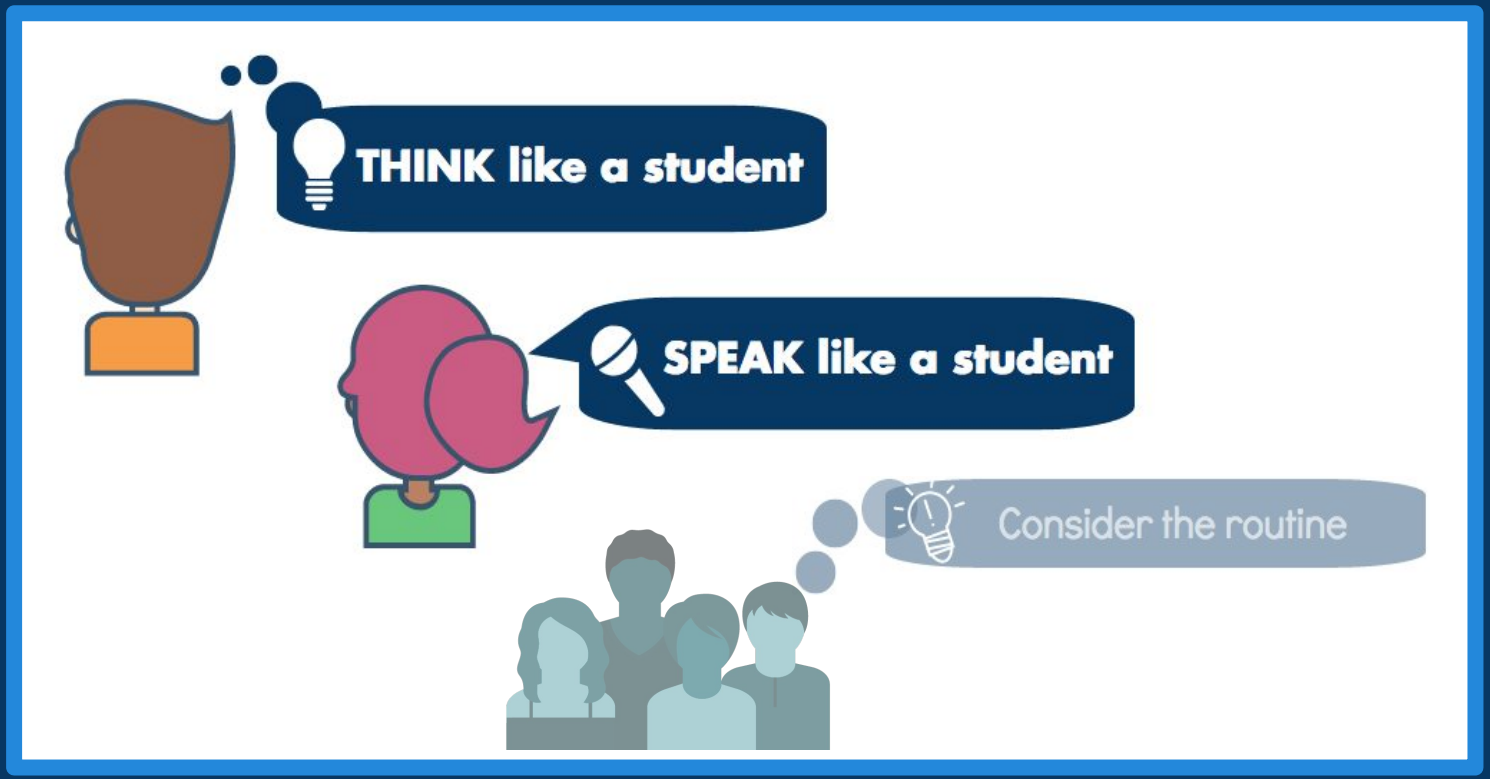

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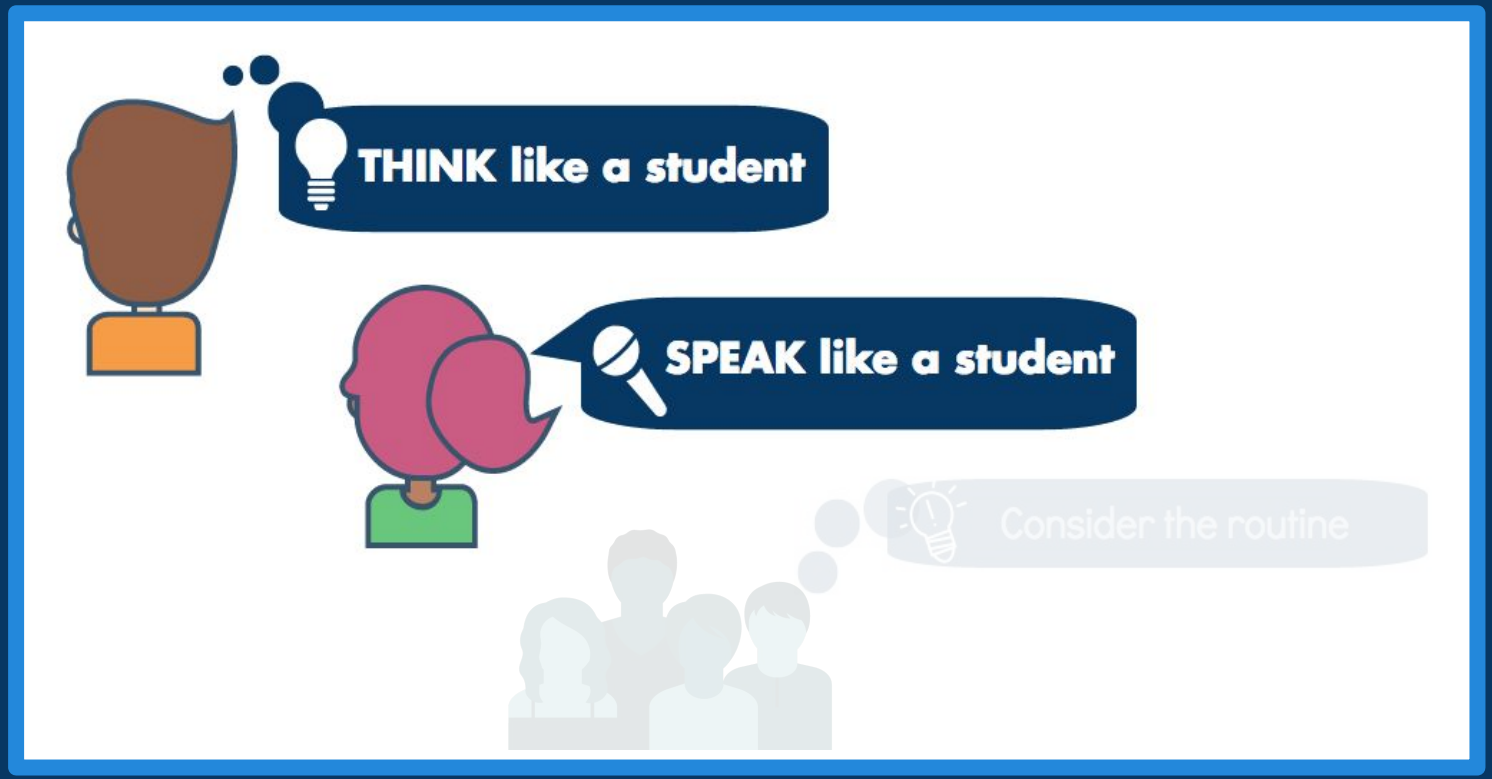


Sharing Skepticism

WHAT: To see the structure of expressions.

WHY: To "*argue like a mathematician*", to construct and critique arguments.

Sharing Skepticism

Solve a problem

Discuss Arguments

Share and Critique Arguments

Choose an Argument

Reflect on Learning

Solve a Problem

Ask yourself…

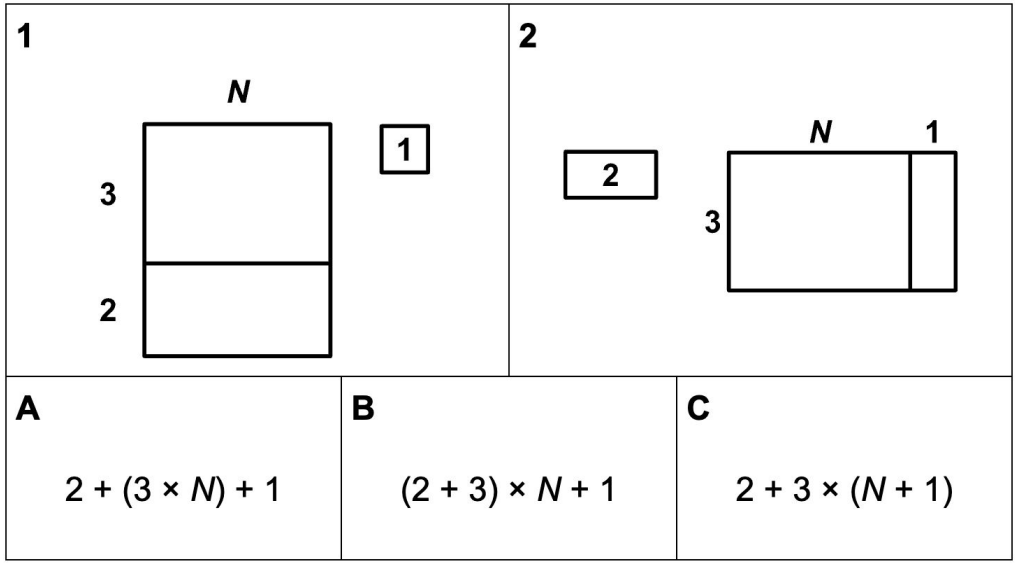
- How can I make my process and reasoning as clear and convincing to others?

Match an expression to one of the visuals.

Solve a Problem

Ask yourself…

- How can I make my process and reasoning as clear and convincing to others?



Match an expression to one of the visuals.

Discuss Arguments

"I think… because…"

"This works because…"

"How do you know…?"

"Can you help me understand…?"

Share Arguments

"We think… because…"

"This works because…"

"They think… because…"
"Their argument works because…"
"We wonder about … because …"

Choose an Argument

THINK

Ask yourself…

Which of these arguments convinces me and why?

Choose an Argument

PAIR

Decide together on argument you both agree with and be prepared to explain your reasoning.

Ask yourselves: Can we improve the argument?

Choose an Argument

SHARE

“We found … convincing because …”

“We understood … better because …”

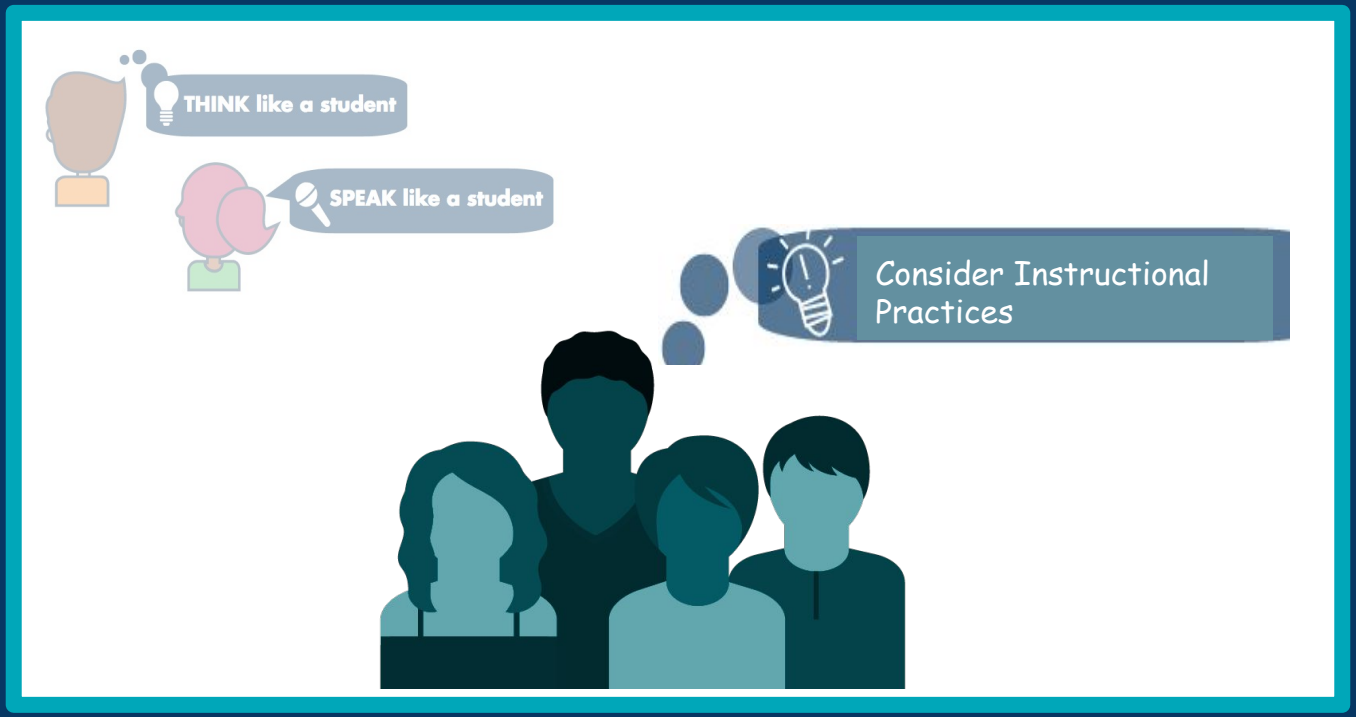
“We can improve … by …”

Reflect on Learning

When *constructing* arguments it is important to … because …

When *critiquing* arguments it is important to … because …

END of Activity



Discuss with your partner:

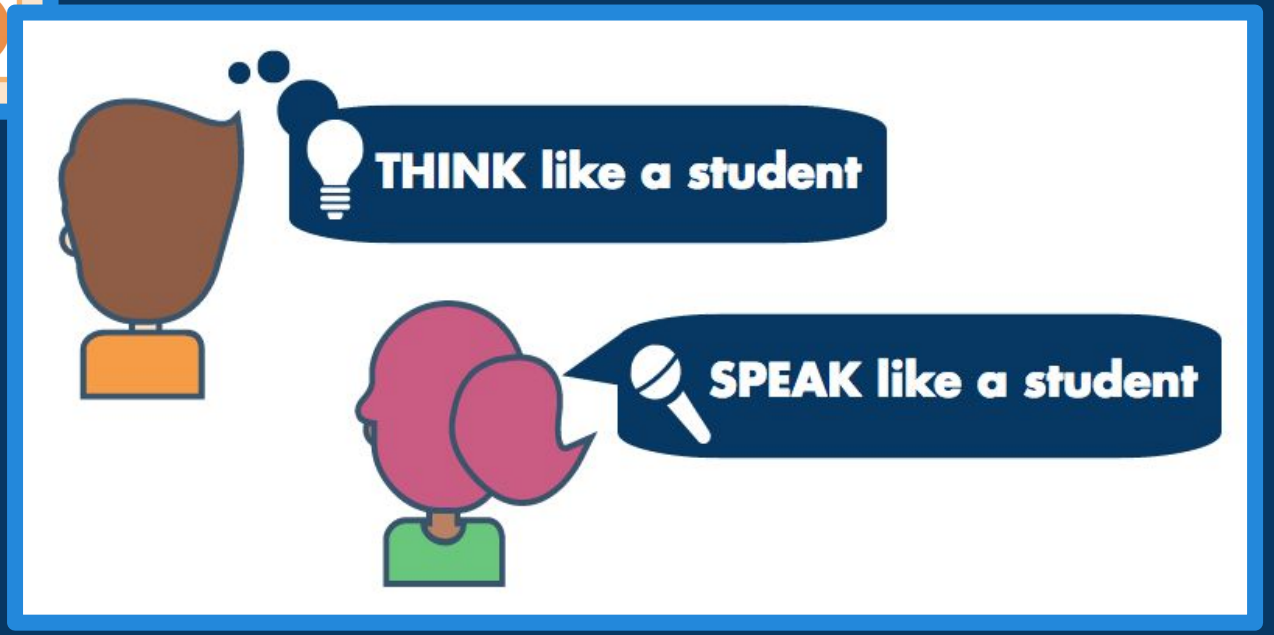
- What do you think stays the same each time this routine is used?
- What do you think changes?

Sharing Skepticism

Sharing Skepticism

WHAT: To understand the structure of radicals.

WHY: To "*argue like a mathematician*", to construct and critique arguments.



Sharing Skepticism

Sharing Skepticism

WHAT: To understand the structure of radicals.

WHY: To "*argue like a mathematician*", to construct and critique arguments.

TIME OUT!

Sharing Skepticism

WHAT: To understand sequences.

WHY: To "*argue like a mathematician*", to construct and critique arguments.

Sharing Skepticism

Solve a problem

Discuss Arguments

Share and Critique Arguments

Choose an Argument

Reflect on Learning

Sharing Skepticism

- Solve a problem
- Discuss Arguments
- Share an Argument
- Choose an Argument
- Reflect on Learning

Solve a Problem

Ask yourself…

- How can I make my process and reasoning as clear and convincing to others?

Find the number of circles in the 100th term of this visual sequence.

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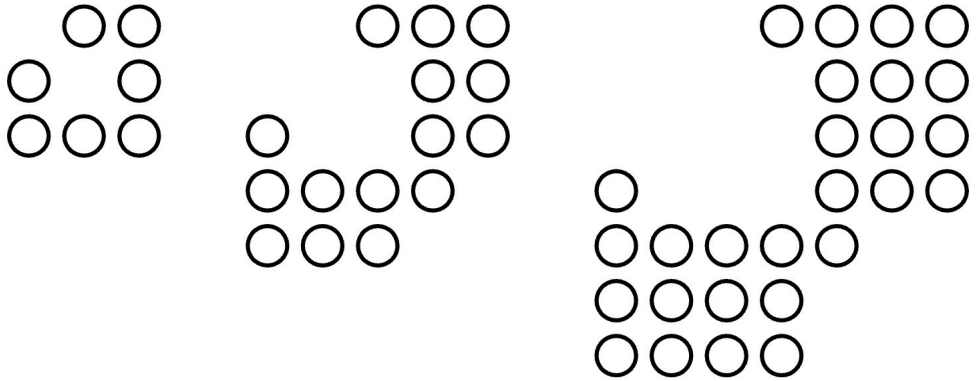

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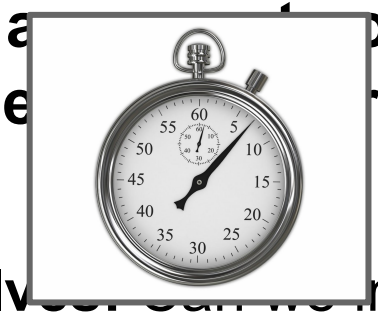

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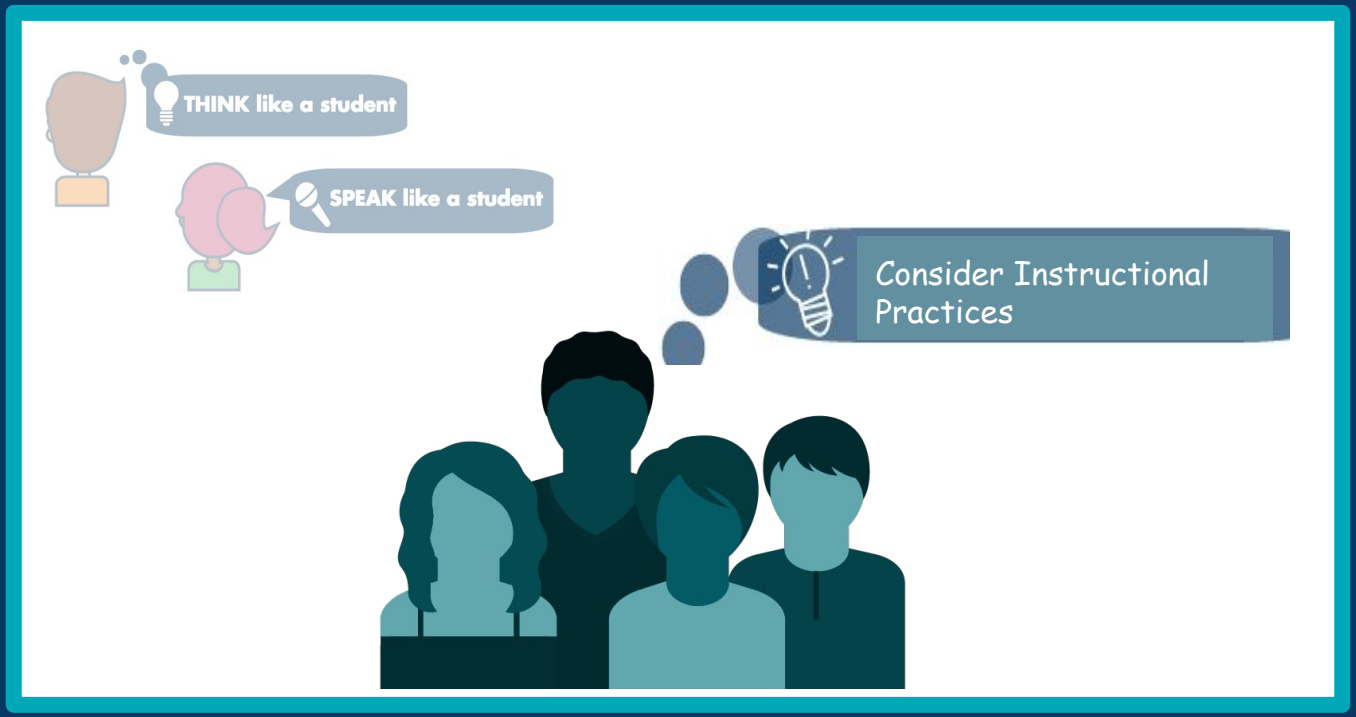


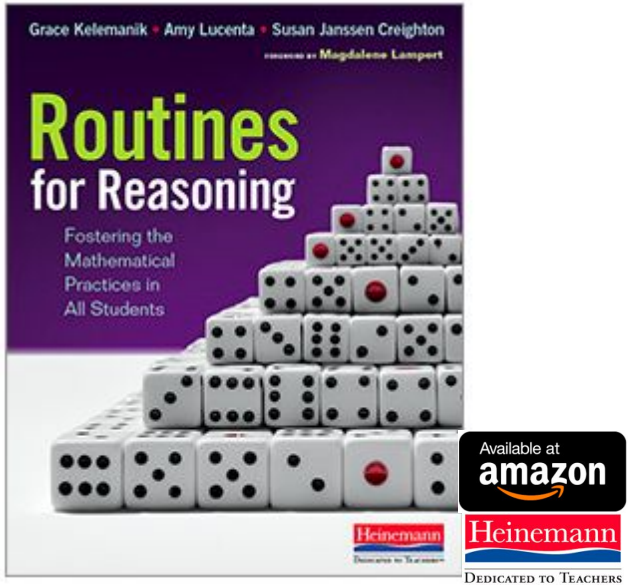
Questions:

1. Identify three questions your group has about the routine.

2. Decide as a group which of these questions has to be answered before you can use the routine yourselves.

3. Be prepared to share your questions with the room.

More Resources and Acknowledgements



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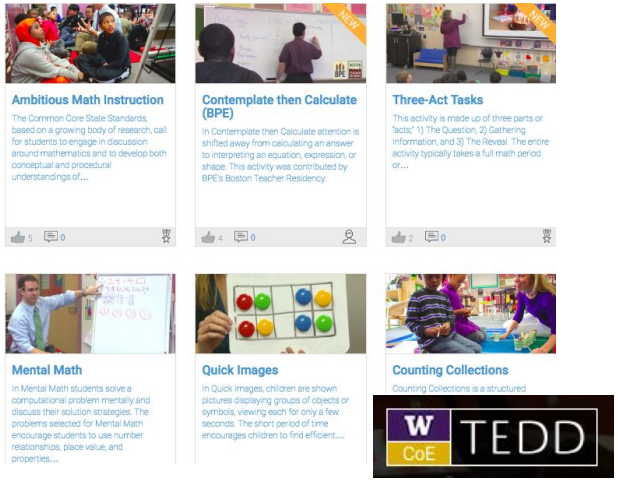

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