

PEDAGOGICAL CONSIDERATIONS

Eliminate the old habit

Using “the answer.”

For example: What was the answer for the next question?

Guess-and-check as a strategy.

Adopt this new habit

Using “the model,” “the relationships,” “the structure,” or “justify your answer.”

You might say this: “Who can show how they modeled the next question? Did someone else do it a different way?”

“So what type of problem is this? Is it a part-part whole problem or a comparative problem? What in the story made you think that? Is it one you would solve using the structure of a linear equation? How do you know that? Is it a problem that involves a proportional relationship that you can use? What made you realize that? Is there another way to draw that relationship?”

“Justify your answer for us, and explain to us why you were able to switch those numbers in that way.”

Systematic mathematical representations, such as using bar models, are what teach students to think precisely as mathematicians think.

Using base-10 to make a problem simpler is also a mathematical strategy.

Why?

When our classroom habit is to find answers we forget to have the most important conversations of all: How did you do that? Why did you do that? What are the relationships that were important in this problem? How did you know that? What do mathematicians call it when you do that?

Discussing the relationships in the problem rather than the “answer” helps to develop the important themes (National Governors Association Center for Best Practices & Council of Chief State School Officers, 2010).

While guess-and-check sometimes involves engaging number sense to locate an answer, this approach should not be taught as a strategy. Mathematical strategies involve instruction that prepares students for more difficult mathematics whereas guess-and-check is a habit that is not logical, or mathematical in its nature (Hoven & Garelick, 2007).