Parent PIPELINE MATH

USE DIAGRAMS, OBJECTS, ETC., TO CONSTRUCT YOUR ARGUMENT FOR SOLVING

Students who understand math well are able to

- make sense of their work and understand *why* the way they solved the problem works or does not work,
- communicate how they solve various math problems to others, and
- understand math on a deeper level.

It is important that students have plenty of opportunities to regularly practice defending their strategies for solving different types of math problems, as well as opportunities to listen to their peers defend their strategies. Doing this will support them with thinking about *why* one strategy will work and another will not, or why one strategy works better than another.

When students work on the skill Use Diagrams, Objects, Etc., to Construct Your Argument for Solving, they use a diagram, object, or other visual aid as a support when explaining *why* their particular strategy works to solve a problem. This strategy also supports students with asking questions of themselves or their peers to clarify or improve their argument for how they arrived at a solution.

Questions students can ask themselves:

- How do I know my strategy makes sense?
- How could I explain my strategy to someone else?
- Would someone else understand how I arrived at my solution without me explaining it to them?

Example

Solution Pathway for Solving
7 + 8 = _____
Solution Pathway: 7 + (7 + 1) = (7 + 7) + 1 = 14 + 1 = 15 **Defense of Strategy:** *I looked at the problem, 7 + 8, and decided to decompose (break apart) the 8 into 7 and 1. This made it easier for me to solve.* *Then I saw that 7 + 7 is a doubles fact that equals 14.* *Then I just had to add 14 + 1 to find a solution of 15.*

How do I know my strategy makes sense?
I know that 7 + 7 is a doubles fact and it equals 14. I added the remaining 1 onto that and found the solution to be 15.

How You Can Help Your Child with This Strategy at Home

1. As your child completes their math work, ask them to explain their work by showing you their solution pathway for solving. Also ask them how they know they found an accurate solution. You may ask them follow-up questions such as
    a. *How do you know that your strategy makes sense?*
    b. *Why does this strategy work in this problem?*
2. If your child gets stuck, ask them
    a. *What is the problem asking you to solve?*
    b. *How can you find this solution?*
3. Model for your child how you solve everyday math problems, using visual diagrams, objects, and so on to show them how you solved the problem, as well as how you know your solution is correct.