Provide Models

MODELING WRITING IN MATHEMATICS

Getting students to discuss their understanding of mathematics allows teachers to gauge students' ability to demonstrate their knowledge and facility with the language of mathematics, and assess the clarity with which they can explain their ideas.

Have students explain their thought process in a math journal in order to practice articulating the steps they took to get an answer. This activity can help them strategize for solving future problems.

The following example of a concept page for a journal details the information, practice problems, and steps needed to complete these problems. Provide students with a completed page so they will have a model for what they should do and what type of vocabulary they should use when explaining their ideas.

Order of Operations

Problem:
Simplify using the order of operations…

$$\frac{15 - 3 \cdot 2^2}{1 \cdot 3} \quad \dots \quad \frac{(15 - 3 \cdot 4)}{(1 \cdot 3)} \quad \dots \quad \frac{(15 - 12)}{3} \quad \dots \quad \frac{3}{3} \quad \dots \quad 1$$

Explanation/Information:
Because the order of operations is: parentheses, exponents, multiplication/division, addition/subtraction, I began by looking for any parentheses to simplify. The numerator and denominator of fractions have implied parentheses, so I simplified both the top and bottom. I began with calculating the exponent in the problem. After that, I looked for any multiplication or division and simplified those. The final step within the numerator/denominator was to subtract 15 by 12. Once I did that, I no longer needed parentheses and could go on to divide and find my answer.

HOW DOES THIS PROVIDE MODELS?

- This sample gives students a reference for completing their own journal/portfolio page and explaining their mathematical thought process in writing.