Absolute Value

STRAND: Number and Number Sense

STRAND CONCEPT: Number Sets and Characteristics

SOL 6.3c, 7.1e

Remediation Plan Summary

Students use number lines to build an understanding of absolute value.

Common Errors and Misconceptions

Some students believe that absolute value means to take the opposite of the number instead of understanding it represents the distance away from zero.

Materials:

- *Number* lines activity sheet
- Colored counters
- Large number line for floor
- Absolute Value Reflection

Introductory Activity

Have students use a number line and counters to plot the following numbers. 5, -2, 6, -1/2. After each value is plotted, ask students "How far away from zero is the number?" "Can anyone give a real life example of this value?"

Plan for Instruction

- Place a large number line on the floor and hand each student a number line and two counters.
- Select a student to come to the large number line and stand at zero. Ask the student to move 3 steps in the positive direction. Students at their desk follow along with their number line and counters. Ask the class, "how many steps did she take?", "What is the distance she traveled?" Have the student return to zero then have them walk 4 steps in a negative direction and ask the same questions. Explain to students that the distance a number is from zero is called *absolute value*. The symbol used to fine the absolute value of a number is $|x|$. Emphasize that the absolute value of a number is always positive. (Relate back to how many steps it was from 3 and then from -4).
- Select two students to come to the front to model on the large number line. Everyone else will model on their number line.
- Have the two students stand back to back at zero. What is the distance between each student? Have each student walk 3 steps in opposite directions. "What is the distance between the two students now? What expression could be used to model the steps? $|-3 - 3|$ or $|3 - (-3)|$ Why is the distance not zero? How could this activity relate to absolute value?
- Select two more students and have them stand at zero and face the same direction. Have one student walk 5 steps and one student walk 3 steps both in a positive direction.

> *What is the distance between the two students now? What expression could be used to model the steps?* $|5 - 3|$ or $|3 - 5|$ *How could this activity relate to absolute value?*

- Select two more students and have them stand at zero and face the same direction. Have one student walk 2 steps and one student walk 7 steps in a negative direction. *What is the distance between the two students now? What expression could be used to model the steps?* $|-2 - (-7)|$ or $|-7 - (-2)|$ *How could this activity relate to absolute value?*

- Have students practice a few more modeling on the number line and writing the expression using the absolute value bars.
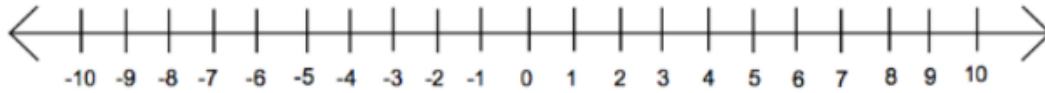
Pulling It All Together (Reflection)

Absolute Value Reflection Questions

Note: The following pages are intended for classroom use for students as a visual aid to learning.

Absolute Value Reflection

Use the number line and words to justify that the absolute value of -5 and +5 are or are not the same.

How are distance and absolute value connected?

Besides distance, explain another practical application of absolute value?

Number Lines