

Unit 7 Lesson 4: Absolute Value of Numbers

1 Number Talk: Closer to Zero (Warm up)

Student Task Statement

For each pair of expressions, decide mentally which one has a value that is closer to 0.

$$\frac{9}{11} \text{ or } \frac{15}{11}$$

$$\frac{1}{5} \text{ or } \frac{1}{9}$$

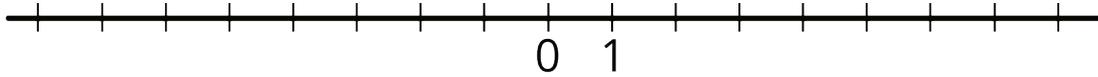
$$1.25 \text{ or } \frac{5}{4}$$

$$0.01 \text{ or } 0.001$$

2 Jumping Flea

Student Task Statement

1. A flea is jumping around on a number line.



- If the flea starts at 1 and jumps 4 units to the right, where does it end up? How far away from 0 is this?
 - If the flea starts at 1 and jumps 4 units to the left, where does it end up? How far away from 0 is this?
 - If the flea starts at 0 and jumps 3 units away, where might it land?
 - If the flea jumps 7 units and lands at 0, where could it have started?
 - The **absolute value** of a number is the distance it is from 0. The flea is currently to the left of 0 and the absolute value of its location is 4. Where on the number line is it?
 - If the flea is to the left of 0 and the absolute value of its location is 5, where on the number line is it?
 - If the flea is to the right of 0 and the absolute value of its location is 2.5, where on the number line is it?
2. We use the notation $|-2|$ to say "the absolute value of -2," which means "the distance of -2 from 0 on the number line."
- What does $|-7|$ mean and what is its value?
 - What does $|1.8|$ mean and what is its value?

3 Absolute Elevation and Temperature

Student Task Statement

1. A part of the city of New Orleans is 6 feet below sea level. We can use “-6 feet” to describe its elevation, and “|-6| feet” to describe its vertical distance from sea level. In the context of elevation, what would each of the following numbers describe?
 - a. 25 feet
 - b. |25| feet
 - c. -8 feet
 - d. |-8| feet
2. The elevation of a city is different from sea level by 10 feet. Name the two elevations that the city could have.
3. We write “-5°C” to describe a temperature that is 5 degrees Celsius below freezing point and “5°C” for a temperature that is 5 degrees above freezing. In this context, what do each of the following numbers describe?
 - a. 1°C
 - b. -4°C
 - c. |12|°C
 - d. |-7|°C
4.
 - a. Which temperature is colder: -6°C or 3°C?
 - b. Which temperature is closer to freezing temperature: -6°C or 3°C?
 - c. Which temperature has a smaller absolute value? Explain how you know.

Activity Synthesis

