## 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.

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

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

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

$0.01$ or $0.001$

### 2 Jumping Flea

#### Student Task Statement

1. A flea is jumping around on a number line.
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	1. 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?
	2. 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?
	3. If the flea starts at 0 and jumps 3 units away, where might it land?
	4. If the flea jumps 7 units and lands at 0, where could it have started?
	5. 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?
	6. 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?
	7. 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?
1. We use the notation $\left|-2\right|$ to say "the absolute value of -2," which means "the distance of -2 from 0 on the number line."
	1. What does $\left|-7\right|$ mean and what is its value?
	2. What does $\left|1.8\right|$ 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 “$\left|-6\right|$ feet” to describe its vertical distance from sea level. In the context of elevation, what would each of the following numbers describe?
	1. 25 feet
	2. $\left|25\right|$ feet
	3. -8 feet
	4. $\left|-8\right|$ 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?
	1. $1^{∘}C$
	2. $-4^{∘}C$
	3. $\left|12\right|^{∘}C$
	4. $\left|-7\right|^{∘}C$
	5. Which temperature is colder: $-6^{∘}C$ or $3^{∘}C$?
	6. Which temperature is closer to freezing temperature: $-6^{∘}C$ or $3^{∘}C$?
	7. Which temperature has a smaller absolute value? Explain how you know.

#### Activity Synthesis





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