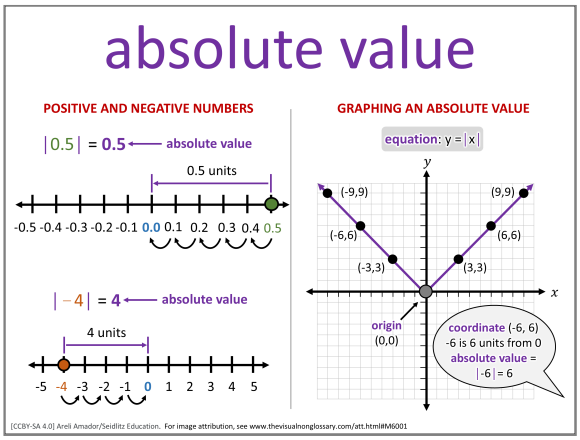
Teacher Guide for the Lesson on **absolute value**



Standard:
6.2(B)

Content Objective:
We can identify and explain the **absolute value** of a number and how it relates to its opposite.

Language Objective: Answer the following question in complete sentences using the sentence stem and the key vocabulary of the lesson:

> Why do you think an **absolute value** cannot be negative?
>
> *I think an **absolute value** cannot be negative because...*

Other key vocabulary: opposite number

By studying this visual, students might:

Notice	Wonder
• The absolute value symbols are shown as two vertical lines around a number.	• Why is the absolute value of a number always positive?
• All absolute values on the number line are positive.	• Can zero have an absolute value?
• The absolute value of both a positive and negative number is the same.	• What do the vertical bars in |--5| mean?
• Numbers like –.3 and .3 have the same absolute value.	• Why do opposites have the same absolute value?
• The number line is used to measure distance from zero.	• Is absolute value the same as taking away the negative sign?

EXTENDING THE DISCUSSION

- After randomly calling on students, if there is anything from this list that was not mentioned, then ask the class, "Did anyone notice...?"
- After students have shared what they notice, ask the class, "Did anyone wonder...?" using the suggestions above or anything else you might think is interesting or relevant to the lesson.

Structured Conversation Prompts

OBSERVATIONAL	RELATIONAL	INFERENTIAL
What is an **absolute value** ? An **absolute value** is...	How is an **absolute value** different from an **opposite number**? An **absolute value** is different from an **opposite number** because...	Why do you think an **absolute value** cannot be negative? I think an **absolute value** cannot be negative because...

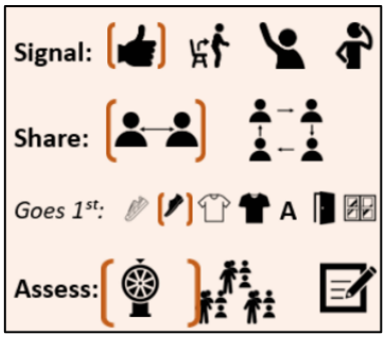
Example Student Responses to the Observational Question

Low-Level	High-Level
An **absolute value** is how far a number is from zero.	An **absolute value** is the distance a number is from zero on the number line, and it is always positive.

RESPONDING TO RESPONSES

Emphasize and celebrate each student's use of the key vocabulary to support a culture of "no wrong answers."

STRUCTURING STUDENT CONVERSATIONS



Have students list observations from the visual as a warm-up, then use the Q-SSS-A process to guide small-group conversations. In the slide decks, brackets can be moved to prepare the structured conversation. In the example to the right, students will be instructed: Q-SSS-A.

- To put a thumb up, then lower their hand when they are ready to answer the question
- To share with their elbow/shoulder partner, and that the student with the darkest shoe will share first
- That they will be randomly called on after the conversation

Here is an example of structuring a conversation with Q-SSS-A.

Note: the inferential question is the same as the language objective. It is recommended that students answer the inferential question in a small-group discussion before answering it individually as the closure or exit ticket of the lesson.

Structured Reading

READING PURPOSE	PAT LIST	POST-READING DISCUSSION
The purpose for reading is to figure out what **absolute value** means and how a number line and the idea of distance can help us understand it.	• What absolute value means • How a number and its opposite are shown on a number line • How far numbers are from zero • How absolute value is written in math • How absolute value compares to negative and positive numbers	How does thinking about distance help you explain why the **absolute value** of a number is always positive? *Thinking about distance helps explain why the **absolute value** of a number is always positive because...*

STRUCTURING THE READING

Communicate the purpose of reading to the students and instruct them to make a note every time they see something on the PAT ("Pay Attention To") list. How you have students note items on the PAT list is up to you. This could include:

- Putting an asterisk in the margin
- Underlining text that supports the PAT list
- Putting a comment in the margin

Follow the reading with the post-reading discussion. Structure this discussion using the Q-SSS-A process just like the structured conversations in this lesson.

Note: you might find the relational question is better discussed before or after the reading. This depends on whether the relational question is directly related to the reading or might make connections across units.

DIFFERENTIATING THE READING

You will notice that three different reading passages are provided with this lesson. Look at the shapes in the top-left of each passage to determine the grade level.

BELOW GRADE LEVEL	ON GRADE LEVEL	ABOVE GRADE LEVEL
		
Triangle is bottom-left	*Square is bottom-left*	*Circle is bottom-left*

In a class with students at diverse reading level proficiencies, you can give the appropriate reading passage to different students, while having all students follow the same PAT list and post-reading discussion.