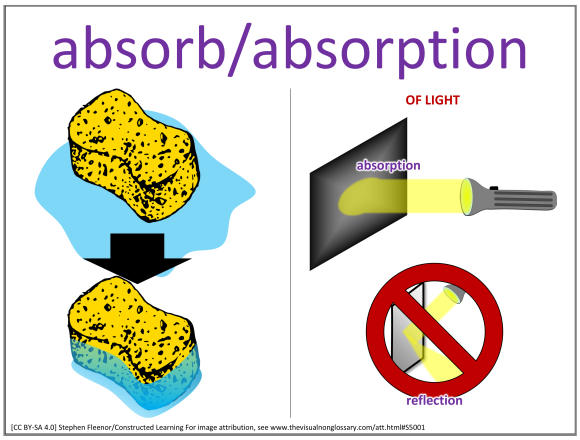
Teacher Guide for the Lesson on **absorb/absorption**



Standard:
5.8(C)

Content Objective:
We can demonstrate how light travels in a straight line and can be absorbed.

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

> How would you know if an object has **absorbed light energy**?
>
> *If an object has **absorbed light energy**, I think...*

Other key vocabularies: absorption, shadows, Absorption, absorbed, light energy

By studying this visual, students might:

Notice	Wonder
• The sponge soaks up water, making it disappear from the tray.	• Why doesn't the light bounce off the black object like it does with the mirror?
• The dark object under the flashlight absorbs the light.	• What kinds of materials absorb the most light?
• The light beam goes in a straight line toward the object.	• Can something both absorb and reflect light?
• The reflected light goes in a different direction than the absorbed light.	• How does absorbing light create a shadow?
• The word absorption is next to the dark object under the flashlight.	• Why does light bounce off some objects?

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 happens when something is **absorbed**? When something is **absorbed**, ...	How is **absorption** related to **shadows**? **Absorption** is related to **shadows** because...	How would you know if an object has **absorbed light energy**? If an object has **absorbed light energy**, I think...

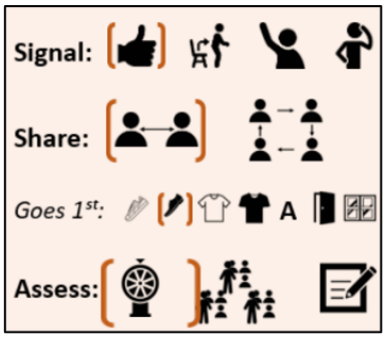
Example Student Responses to the Observational Question

Low-Level	High-Level
*When something is **absorbed**, it goes inside.*	*When something is **absorbed,** it goes inside an object instead of bouncing off, like when a sponge **absorbs** water or an object **absorbs** light energy.*

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 understand what happens when **light energy** is **absorbed** and how that helps us identify **absorbing** materials.	• What is absorption of light energy • Examples of objects that absorb light • How shadows are formed	How can you tell if an object **absorbs light energy** based on how the light behaves? *We can tell if an object **absorbs light energy** 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.