

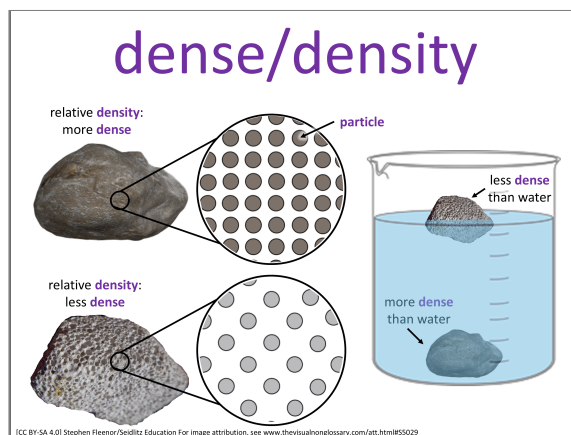
## Teacher Guide for the Lesson on **dense/density**

**Standard:**  
5.6(A)

**Content Objective:**

We can compare and contrast **matter** using relative **density**.

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



Why is it important to know the relative **density** of **matter**?

*It is important to know the relative **density** of **matter** because...*

**Other key vocabularies:** [density](#), [physical property](#), [Density](#), [matter](#)

**By studying this visual, students might:**

Notice	Wonder
<ul style="list-style-type: none"> <li>Some objects sink in water while others float.</li> </ul>	<ul style="list-style-type: none"> <li>Why do some heavy objects float while lighter ones sink?</li> </ul>
<ul style="list-style-type: none"> <li>Objects that are more dense are packed with more particles.</li> </ul>	<ul style="list-style-type: none"> <li>Can two objects of the same size have different densities?</li> </ul>
<ul style="list-style-type: none"> <li>Less dense objects take up more space with fewer particles.</li> </ul>	<ul style="list-style-type: none"> <li>How does mass affect whether something floats?</li> </ul>
<ul style="list-style-type: none"> <li>Relative density can be compared using water as a reference point.</li> </ul>	<ul style="list-style-type: none"> <li>Do gases and liquids also have different densities?</li> </ul>
	<ul style="list-style-type: none"> <li>Can density change if you cut an object into smaller pieces?</li> </ul>

## 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
<p>What does it mean for something to be more or less <b>dense</b>?</p> <p>If something is more <b>dense</b>, ... If something is less <b>dense</b>, ...</p>	<p>How is <b>density</b> related to <b>physical property</b>?</p> <p><b>Density</b> is related to <b>physical property</b> because...</p>	<p>Why is it important to know the relative <b>density</b> of <b>matter</b>?</p> <p>It is important to know the relative <b>density</b> of <b>matter</b> because...</p>

### Example Student Responses to the Observational Question

Low-Level	High-Level
<p>If something is more <b>dense</b>, it sinks. If something is less <b>dense</b>, it floats.</p>	<p>If an object's <b>relative density</b> is more <b>dense</b>, it has more <b>particles</b> packed into a small space. If an object's <b>relative density</b> is less <b>dense</b>, it has fewer <b>particles</b> spread out.</p>

## 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 how <b>density</b> helps us compare and contrast different types of <b>matter</b> .	<ul style="list-style-type: none"> <li>• Examples that show when something sinks or floats</li> <li>• How the particles affect the density</li> <li>• How relative density of matter can be determined</li> </ul>	<p>How can comparing objects in water help you figure out their <b>relative density</b>?</p> <p><i>Comparing objects in water helps me figure out their <b>relative density</b> because...</i></p>

## 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
 <i>Triangle is bottom-left</i>	 <i>Square is bottom-left</i>	 <i>Circle is bottom-left</i>

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.