

Density Video Reflection and Student Perspective Activity

<https://www.youtube.com/watch?v=5AYeb6GkLvg>

Instructions for Teachers

Watch the density video and complete the questions **as if you were an elementary student**.

Use only the information and examples provided in the video. Avoid answering from your own background knowledge as an educator.

As you complete each question, consider:

- Could an elementary student understand the question?
- Does the video provide enough information to answer it?
- What vocabulary or concepts might confuse students?
- What additional support, modeling, visuals, or hands-on experiences might students need?

Important Reflection: If you are unable to answer a question using the video alone, explain how you think an elementary student might respond. Consider whether the student might guess, leave the question blank, repeat words from the video, or use a common misconception.

Part 1: Respond as a Student

1. What does density mean?

- ☐ How heavy something is for its size
- ☐ How colorful something is
- ☐ How loud something is

2. What did you notice in the video?

3. Which object or material do you think would float best? Why?

4. What evidence from the video supports your answer?

5. What question would you like to investigate next?

Part 2: Project-Based Learning Challenge

Imagine you are designing a **boat, floating toy, or animal raft** that must stay above water.

6. What materials would you use?

7. Why do you think your design would float?

8. How would you test and improve your design?

Part 3: Teacher Reflection

9. Which question was easiest to answer as a student? Why?

10. Which question was most difficult to answer using only the video?

11. If you could not answer a question, how might your students respond?

- ☐ Make a guess
- ☐ Leave it blank
- ☐ Repeat words from the video
- ☐ Share a misconception
- ☐ Ask for help
- ☐ Other: _____

12. What scaffolds would help students answer more successfully?

- ☐ Vocabulary definitions
- ☐ Pictures or diagrams
- ☐ Sentence starters
- ☐ Teacher modeling

- ☐ Partner discussion
- ☐ A hands-on density investigation
- ☐ Other: _____

13. How could the video become the starting point for a project-based learning investigation?

14. What evidence would show that students understand density rather than simply remembering information from the video?

NGSS and PBL Connections

Science and Engineering Practices

- Asking Questions and Defining Problems
- Planning and Carrying Out Investigations
- Constructing Explanations and Designing Solutions
- Engaging in Argument from Evidence

Crosscutting Concepts

- Cause and Effect
- Structure and Function
- Patterns

Project-Based Learning Connection

Teachers use student responses to identify prior knowledge, misconceptions, and areas requiring support. Students then apply their understanding of density to design, test, evaluate, and improve an object that floats.