

Unit: Seafaring 101 adapted from Sink and Float Day created by Janette Gallup and Tehani Fiatoa
 Lesson: Sink and Float
 Grade Level: 3-4

NGSS Performance Expectations (for the lesson):

Support an argument that the gravitational force exerted by Earth on objects is directed down.

Science and Engineering Practice:	Disciplinary Core Ideas:	Crosscutting Concepts:
Engaging in Argument from Evidence	The gravitational force of Earth acting on an object near Earth's surface pulls that object toward the planet's center.	Cause and Effect

Common Core State Standards
Math: Solve problems involving measurement and estimation
ELA: Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.

Learning Objectives:

- SWBAT hypothesize which objects will sink and float.
- SWBAT define gravitational force.
- SWBAT define buoyancy.
- SWBAT compare and contrast weight and mass.
- SWBAT explain why objects sink or float.

Materials:

4-medium or large plastic totes 2/3 full of water
 Variety of objects - I used: rocks, popsicle sticks, foam pieces, sponges, magnets, wood and plastic rulers

Sink/Float Hypothesis form
 Doodle Notes - Mass, Weight, Volume

Procedure:

Lesson Section/Time	Teacher and Student Activities	Key Questions
Engage 10 min	Watch You Tube video - Ship Construction time lapse https://youtu.be/lavm7CausyA	How does a boat float even though it is very heavy?

Explore 15 min	Discuss Titanic - The Unsinkable Ship Read Quick Facts http://www.titanicfacts.net/ SW examine objects for investigation. SW complete the hypothesis portion of the Sink/Float Hypothesis WS	Why did the Titanic sink? Why do icebergs float? What happens when something can't float? Where do objects sink? What is buoyancy?
Explain 20 min	SW be separated into four groups. SW take turns testing the objects and record the results on the Sink/Float sheet Groups will meet and greet with each other to discuss results.	Which objects are buoyant and which objects are not? Why?
Elaborate 10 min	Pass out Doodle Notes for students to complete.	Define the following terms: buoyancy volume mass gravity
Evaluate 10 min	Review Doodle Notes definitions Make corrections if necessary SW write a reflection of what was learned during the investigation.	What is the difference between mass and weight?