

Bruce Museum @ Home

STEAM Activities for Children

Lesson # 1: *Sinking and Floating*
Week of March 23, 2020

Introduction to Sinking and Floating

This activity serves as an introduction to the concepts of sinking and floating. Included in this activity are: instructions and materials for making a science journal, a materials list for and the sinking and floating activity, basic vocabulary words, and instructions for the sinking and floating activity. While this activity was designed for learners in 1st-5th grade, younger learners can participate with adult supervision.



*****Important*****

Everyone needs a notebook or journal to record their science experiments. If you or your learners don't have a journal already, it's easy to make one (or many) using common household items or materials that are easy to order online. You might find that you have so much fun making your journals that you don't get around to sinking or floating anything today, and that's ok.

Make your own Science Journal

Materials: Thick paper for covers, hole-punches, lined or blank writing paper, string, scissors, pens, pencils, rulers, duct tape, staplers, markers, stickers

For older students: [Duct Tape Binding](#)

For younger students: [String Binding](#)





Learners should use their journals before they start an experiment. The journals are for recording what they think will happen during an experiment, what their process for conducting an experiment will be, what they want to learn next, and anything that interests them about the process. Drawing and labeling experiment materials, listing new vocabulary words, and posing questions and ideas for future projects is always a good use of a science journal. Encourage your learners to personalize and decorate their journals.

Sinking and Floating

Materials: Containers for water, tinfoil, pennies, rocks, rubber balls, wood chips, screws, nails, wire, foam pieces, ice cubes, carrots or other non-porous food items, other household items, paper towels, pencils, science journals.



Vocabulary words

Buoyancy: the ability or tendency to float in air, water, or some other fluid.

Displacement: the occupation by a submerged body or part of a body of a volume which would otherwise be occupied by a fluid.

Volume: the amount of space that a substance or object occupies, or that is enclosed within a container.

Weight: a body's relative mass or the quantity of matter contained by it, giving rise to a downward force; the heaviness of a person or thing.

Procedure:

Discuss basic concepts that will determine whether or not an object will float or sink. Learners can relate their own experiences of learning to swim, being in the bath, playing in water, etc. Below are a few suggested questions to help learners engage, don't limit yourself to just these suggestions, ask your learners to write down questions that they might have, see if you can answer them together.

Some easy questions to engage learners:

- How can you tell if something will float or sink?
- When you go in the water do you float or sink?
 - Is there anything you can do to help yourself float?



- Is there anything you can do to help yourself sink?
- Does everything that is heavy, sink?
- Does everything that is light, float?
- Can something be too small to float?

Conduct tests (will it sink or float) with a wide range of objects. Have learners create a chart, or use the one provided page. Based on the results that learners come up with, ask them to develop theories about why some objects floated, and others did not. Older students can measure the amount of water the objects displace if they sink or float and log this information in their science journals. They can do this if the container for sinking or floating has measurements on it (like a large liquid measuring cup) or by placing a ruler into the container and measuring the centimeters/inches displaced. Ask your learners if they can come to any conclusions about displacement vs. mass and floating.

NGSS Performance Expectations

2-PS1-1.

Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.

2-PS1-2.

Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.

5-PS1-3.

Make observations and measurements to identify materials based on their properties.

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