Professional Development Situation: Activity Guide

Skill Focus: Supporting Documentation of STEM Learning & Reflecting and Processing STEM Experiences

Time Required: 60 minutes

SINK OR FLOAT?

In this activity, youth learn about the science process, classifying objects, and the stable behavior of objects by testing whether items sink or float.

Grade Level

- K-2

Framing Question

- What objects sink when they are in water? What objects float? Why do objects sink vs. float?

Learning Objectives

- Be able to classify objects based on their behaviors.
- Be able to identify that there is consistency in the way items behave over time.
- Be able to use the science processes of making predictions, testing, retesting, and communicating results.

Key Terms

- Sink: *to fall or drop to a lower place or level*
- Float: *to stay on top of the surface of a fluid*

Materials

- Plastic and metal spoons
- Plastic bottles with/without lids
- Bathtub toys

- Ping Pong Balls; solid rubber balls
- Plastic cup
- Fishing bobber
- Rubber duck
- Paper towels
- Piece of wood
- Pencils
- Erasers
- Sponges
- Newspaper
- Plastic bins (one for each group of youth)
- Copies of Sink or Float worksheet (1 per group of youth)

Advanced Preparation

- Review the activity and practice it on your own, if possible.
    - *Italics words are what you can say to youth.*
- Gather all materials and become familiar with the vocabulary terms.
    - Youth will be in groups of 4-5 and each group will need a plastic bin and each of the items.

Activity Instructions

Introduction (10 minutes)

- Ask the following question:
    - *Do you have any ideas about what happens when you put objects in water?*
    - *What objects have you seen sink when they put into water?* (Example: a cup filled with water, a rock, some toys that do not have air inside them, a wet washcloth)
    - *What objects have you seen float when they put into water?* (Example: tub toys, leaves, Styrofoam cups, balloons)
    - *Do you sink or float in the water?*
- Discuss the youth's responses and emphasize the words "sink" and "float".
- Inform youth that you will be using the science process to test whether objects Sink or Float using the tubs of water.

Predictions (5 minutes)

- Break up the youth into groups of 4-5 and handout the objects and the Sink or Float worksheet.
- Ask youth to write down the name of the objects they have or to draw a picture of them.
- All groups will test all items. The groups will collaborate with each other to make their prediction.
- Have the youth write or draw their prediction in the Prediction column. Explain that a prediction is a guess as to what will happen.

Test (15 minutes)

- Have the youth test their objects by placing them in the water tub.
- After testing each object, ask them to record sink or float under the 1st Test column.

Re-Test (15 minutes)

- Have the youth re-test their objects by placing them in the water tub.
- Once youth finish retesting each object, ask them to record sink or float under the 2nd Test column.

Reflection and Discussion

Activity Reflection (10 minutes)

- Discuss the results with the whole group.
    - *How many of your predictions were correct?*
    - *As you look at your worksheets, did your predictions get better? Or worse? Or stay the same?*
    - *What are the characteristics of the objects that sank?*
    - *What are the characteristics of the objects that floated?*
    - *Did any of the objects do the opposite of what they did between the first and second test?*
    - *Why is it important that we know what objects will sink or float?*
    - *How did we use science to find out what objects sank or floated?*

Evaluation (5 minutes)

Ask each group to create a question related to the activity that was completed. Collect the questions and use them as a "ticket out the door".

Adapted from: American Association for the Advancement of Science (AAAS). (2018). *ScienceNetLinks Sink or Float?* Retrieved from: http://sciencenetlinks.com/lessons/sink-or-float/.

Sink or Float

Write the name of the object. Write if you think the object will sink" or "float" in the prediction column. After you test the object, write what happened. Did it sink or float? After you test the object again, write what happened. Did it sink or float?

Object	Prediction	1st Test	2nd Test