

STEM Lesson Plan

Challenge: Sink or Float?

Grade Level: PRE-K

Time: 50 minutes

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Standards

(PK.AC.1) (PK.AC.3) (PK.MATH.3) (PK.MATH.6) (PK.MATH.10) (PK.MATH.11) (PK.SCI.10)
(PK.SCI.11)

Concepts

S: understanding concepts of sink or float

T: playing an online game on the interactive screen

<https://sesamestreetincommunities.org/activities/sink-or-float/>

E: making a bottle that can sink or float

M: concept of sizes, counting, and making a chart

Objective:

Students will be able to understand the concept of, and identify which objects sink or float.

Big Idea:

Experimenting with sinking and floating allows students to predict and observe why some objects sink and why some float.

Materials:

- Large clear tub filled with water
- Empty plastic bottles (1 per 2 students)
- Objects to test such as:
 - Paper clips
 - Feathers
 - Leaves
 - Plastic buttons
 - Wooden blocks
 - Sheets of paper
 - Pencils
 - Ruler
 - Metal cup
 - Crayons
 - Erasers

Introduction: (5 mins)

The classroom is set up with a clear large tub of water on top of a table. Beside the tub there are different objects of different sizes and materials. Such as: a paper clip, a feather, a leaf, a plastic button, a wooden block, a sheet of paper, a pencil, a ruler, a metal cup, a crayon, and an eraser.

There will be a chart drawn on the board with a “sink” column and a “float” column. There will be a column with pictures of the different objects that we will be testing. I will create a chart based on the students’ predictions.

To begin the lesson, I get the students attention by singing the “Cris Cross Applesauce” song. The students will know to sit on the carpet and focus their attention on me. They will be curious and intrigued when they see the large tub of water and the objects. I will tell them that we will be doing an experiment today. I will ask the group “who knows what sinking means?” and “who knows what floating means?”. I will wait for their responses for a small group discussion. I will then teach them the definitions.

Sinking is when an object goes under water.

Floating is when an object stays above water.

Engage: (15 minutes)

I will tell my students that we will be experimenting with the different objects we have to see which of them will sink and which of them will float. But before we begin placing any object into the water they will need to predict if the item will sink or float. I will ask one student to stand up and choose an object. Then I will have the students raise their hand if they think it will sink. I will count how many hands and write down the number of hands in the sink column beside the picture of the chosen object. I will then ask the students to raise their hand if they think it will float. I will count how many hands and write down the number of hands in the float column. I will then ask the student to carefully place the object into the tub of water. We will see what the outcome is and how many students made the correct prediction. We will continue to do this until all the objects have been tested.

After we finish experimenting with the objects, I will push the table aside and I will tell the students that we will now play an interactive sink or float game on our smart screen. I will open the following link <https://sesamestreetincommunities.org/activities/sink-or-float/> I will first demonstrate to them how to play it. Then I will give each student a chance to play. The students must first click on the item they think will sink to go into the large treasure chest. Then the students must click on the item they think will float to go into the large floating tube.

Explore: (15 minutes)

After we finished playing the sink or float game on the interactive smart screen, I will show the students some empty plastic bottles. I will explain to them that they will now be able to create their own object that will either sink or float by filling the empty plastic bottles with items of their choice from around the classroom.

I will ask each student if they want their bottle to sink or float. Then based on their choices I will have them work in pairs. I will write down the names of each pair and their choices on a sheet of paper. I will have the students stand up from the carpet and I will name each pair. Each pair will get an empty plastic bottle. The pairs will need to go around the classroom and fill their empty plastic bottles with objects to either make it sink, or make it float (based on the choice they made).

As the students are filling their bottles with objects of their choice, I will go around the classroom asking them questions about their choice of objects and supporting them if needed to help them reach their conclusion. I will do this by asking questions such as: why do you think this object will make your bottle sink? Or why do you think this object will make your bottle float?

Explain: (10 minutes)

Once all the pairs have filled their plastic bottles, I will have all the students gather back at the carpet and sit by singing the “Criss Cross Applesauce” song. I will tell them that they will now be testing their bottles to see if they will sink or float, based on the option they chose. I will call up each pair and have them say which option they chose. Then I will ask them: which objects did you choose to fill your plastic bottle with? Why did you choose those objects?

The pair will then be asked to place their plastic bottle into the tub of water for us to see if it will sink or float based on their prediction. I will create another sink or float chart on the board to keep track of how many of the students’ bottles sank and how many of them floated. We will repeat this until all the pairs have tested their plastic bottles.

Evaluate: (5 minutes)

Once all the pairs have tested their plastic bottles, we review the definitions of sink and float. We will have a group discussion using the chart to see how many pairs were successful with their predicted outcome of their plastic bottle.

Students will be assessed based on their understanding of the concepts sink and float, and how successful they were at completing their experiment.