

Material Preparation

MATERIALS

- scissors
- measuring cup
- medium-sized container
- cloth large enough to cover the container
- two metal paper clips
- plastic penny
- plastic nickel
- one penny
- one nickel
- clear plastic dish basin
- balance scale
- two ping-pong balls
- two golf balls
- 1.5" Styrofoam™ ball
- two 9" balloons (same color)
- two recycled 8-oz. water bottles with lids
- drinking straw
- ½ cup of modeling clay
- water
- paper towels
- plastic tablecloth

For each child:

Ask Me About Water sticker

TEMPLATES

Sink/Float Cards

PREPARE IN ADVANCE

- Follow the instructions on *Sink/Float Cards*.
- Prepare sink/float object pairs so that items look the same, but one weighs more than the other:
 - **Straw:** Cut straw into two 3" pieces. Straighten two paperclips, twist apart and insert both into one of the straw pieces. Plug both open ends of each straw with clay.
 - **Balloons:** Fill one balloon with water, one with air. Ensure they both fit on balance scale and appear to be the same size.
 - **Plastic bottles:** Remove labels. Fill one bottle with water; leave other empty; secure caps.
 - **Balls:** Make a 1.5" ball of clay that looks the same size as the 1.5" Styrofoam™ ball.
 - **Penny:** Place one real and one plastic penny in the container.
 - **Nickel:** Place one real and one plastic nickel in the container.



SET UP THE LESSON AREA

- Cover table with the plastic tablecloth.
- Fill water basin half full with water.
- Gather ping-pong balls, golf balls, balance scale, measuring cup, paper towels, *Sink/Float Cards*.
- Place sink/float pairs of objects in container and cover with cloth; place under table.

OBJECTIVE

Children will discover that when objects are of similar size and shape, the heavier object will usually sink.

EXCITE

Place a ping-pong ball in one hand and a golf ball in the other hand and hold both hands over the water basin. **I'm going to drop these two balls into the water. Watch carefully to see what happens. Let's count to three: 1, 2, 3!** Drop the balls into the water basin. Act surprised!



INTRODUCE

1. **Look closely. What do you notice?** Listen to the children's responses.
2. Point to the ping-pong ball in the water. **This is a ping-pong ball. It's on *top* of the water: it *floats*.** Point to the golf ball in the water. **This is a golf ball. The golf ball is at the *bottom*: it *sinks*.** Take the balls out of the water and dry them with a paper towel.
3. **I want each of you to tell me what you notice about these balls when I place them in your hands.** At each child's turn, ask the child to hold out both hands. Place one ball in each hand. Prompt the children to notice that one ball feels *heavy* and one ball feels *light*.



4. **Let's talk about what happened when I dropped the balls into the water. Which ball sank?** Listen to the children's responses. **Yes, the *heavy* one, the golf ball. What did the other ball do?** Listen to the children's responses. **Yes, it floated on top of the water because it is *lighter* than the golf ball. We can use the weight of objects to predict which one will sink and which one will float.**

The weight of objects of similar size or shape does NOT always tell us if it will sink or float, but it can help us predict what will happen.

5. Point to the balance scale. **This is a special tool called a balance scale. It will help us find out the *weight* of objects.**

6. **Let's see how this balance scale works. Watch closely.** Demonstrate a level scale. Place two ping-pong balls on the balance, one on each side. **The scale is *level*. That means both objects weigh about the same.**

7. Ask a child to remove a ping-pong ball from one side. **What happened? Yes, the scale went *up* on one side.**

8. **What do you think will happen when we put a golf ball on the empty side?** Listen to the children's responses. **Let's try it and see. Watch closely.** Ask a child to place a golf ball on the empty side. **What happened?** Accept responses. **The side with the golf ball went *down*; that means the golf ball is ____.** Prompt children to say *heavier*. **The side with the ping-pong ball went up; that means the ping-pong ball is ____.** Prompt children to say *lighter*.

Remind children that weight is not always a predictor, but does provide a clue.

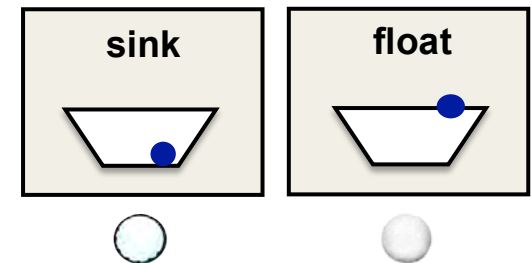
9. Ask a child to replace the ping-pong ball with a golf ball so that there is one golf ball on each side of the balance. **What happened?** Listen to the children's responses. **The scale is *level* again. That means both objects weigh about the same. Good observers!** Remove the two balls.



EXPLORE

1. **Today we will work together to conduct an investigation. First, we'll predict which objects will float and which will sink. What tool can we use to help us?** Listen to the children's responses. Point to the balance scale. **This balance scale will help us find out which objects are heavier. On the balance scale heavier objects go down and in the water they usually sink.**
2. Move the covered container of sink/float objects from under the table and place them where all can see. **We'll use these objects to make our predictions.** Give each child one sink or one float object from the container.

***NOTE:** There are six pairs of items that look the same but have different weights, like a balloon filled with water and a balloon filled with air. Be sure to distribute pairs of items, equal to the number of children in the group (maximum 6). If the group size is an odd number, pair a child with the teacher.*
3. Hold up the *Sink Card*. **This card says *sink*.** Put the *Sink Card* on the table and point to it. **We will place all the objects that sink next to this card.** Hold up the *Float Card*. **This card says *float*.** **What objects do you think we'll place here? Yes, the objects that float.**
4. **Let's begin. We'll work in teams.** Direct a pair of children with two similar objects (for example, two straws or two balloons) to go first.
5. **First, look at your objects closely. What is the same about them?** Prompt the children as needed to say that they are the same size, shape, and possibly the same color.



6. **Before each of you places your object on the balance scale, which one do you predict will sink when we put it in the water? Listen to the children's responses. Which one do you predict will float? Listen to the children's responses.**
7. **Now, place your objects on the balance scale. What happened? Listen to the children's responses.**
8. **Let's test your predictions. Place your objects in the water. Ask the whole group: Were their predictions correct? Listen to the children's responses. If your object sank, place it next to the *Sink Card*. If your object floated, place it next to the *Float Card*.** Assist as needed.
9. Collect pairs of objects. Distribute unused pairs to continue the investigation. Repeat steps 5–8 with the remaining pairs of children.
10. **You all did a great job! We learned that heavier objects usually sink, and lighter objects usually float – but it's really important to test our predictions!**




INTERACT

Interact to accommodate children's individual needs and strengths. Use these suggested strategies as needed:

- While teams of children wait for their turn, they may need to hold something in their hands or be given a special job. For example, designate a team of *splash wipers* to wipe up any water spilled on the table.
- There are six pairs of sink/float items to use during the lesson. If the group size is an odd number, pair a child with the teacher.



OUTCOMES

1. Regroup the children in the ECHOS lesson area. **What did we discover today?**
Listen to the children's responses. If needed, use suggested prompts to elicit key concepts and vocabulary. Encourage responses from all children in the group.
 - **What happened to the heavier object when you put it on the balance scale?**
 - **What happened to the lighter object when you put it on the balance scale?**
 - **What happened to the heavier object when you put it in water?**
 - **What happened to the lighter object when you put it in water?**
2. Give each child an *Ask Me About Water* sticker. 

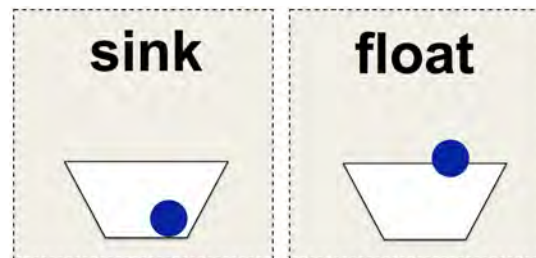
Remind the children to tell their family something they have learned about things that sink and float in water.
3. After you have completed *Lesson #3: Which One?* with all children in your classroom, place the ECHOS materials suggested below near your water table to encourage exploration.

VOCABULARY

- float/sink
- heavy/heavier
- level
- light/lighter
- top/bottom
- up/down
- weight



balance scale



Sink/Float Cards



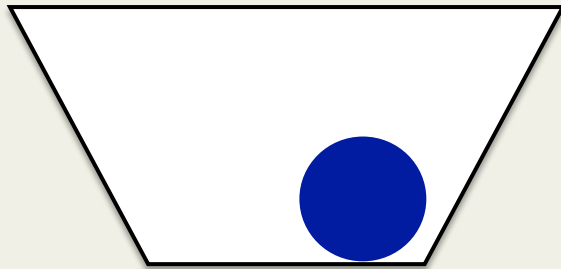
sink/float object pairs
(safe enough to leave in Science Area)

Sink/Float Cards

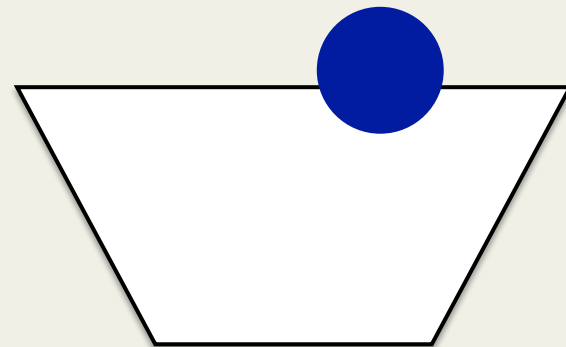
Instructions:

1. Make one photocopy of this page.
2. Cut along the dotted lines.
3. Cards may get wet, so laminate if possible.

sink



float

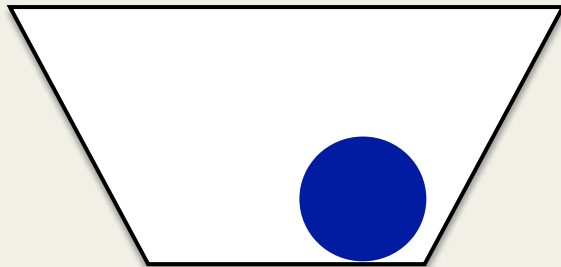


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sink



float

