

## Material Preparation

### MATERIALS

- large tray
- clear plastic measuring cup
- 1-liter plastic bottle
- plastic dishwashing basin
- ½ cup of modeling clay (do not use play dough)
- drinking straw
- water
- plastic tablecloth
- paper towels
- three clear 9-oz. plastic cups
- permanent marker

*For each child:*

- art smock (if available)
- handful of modeling clay, in a sandwich bag
- paper towel
- two clear 9-oz. plastic cups
- *Ask Me About Water* sticker

### PREPARE IN ADVANCE

- Make a clay doll. Roll half of modeling clay into two 1” diameter balls. Join them together; if necessary, use a drinking straw to hold them in place. Use the marker to draw a face on the head.
- Use the remaining clay to make two round clay balls:
  - One ball should be small enough to cause water level in the cup to rise slightly.
  - The other ball should be larger, large enough to cause the water level in the cup to rise **significantly**.
  - Test both balls.
- Fill 1-liter bottle with water to use as a water source.
- Place two 9-oz. plastic cups per child on a large tray. Fill each cup half full. Use permanent marker to mark water level on each cup.



### SET UP THE LESSON AREA

- Cover the table with a plastic tablecloth.
- Place one 9-oz. plastic cup inside empty basin; fill cup with water.
- Place 1-liter bottle of water near empty basin with measuring cup.
- Place the following items on the table: clay doll, two clay balls, two empty 9-oz. plastic cups, and paper towels.
- Set aside a sandwich bag with modeling clay for each child and the large tray with marked 9-oz. plastic cups.



For each child



## OBJECTIVE

Children will understand that when an object is placed in a container filled with water, the water level rises because the object takes up space.

## EXCITE

1. Hold up the clay doll. **It's time for this clay doll to take a bath.**
2. As you place the clay doll into the cup of water in the basin, act surprised to see the water overflow. **OH NO! What happened to the water when I placed the doll in the cup?** Encourage children to describe what happened.

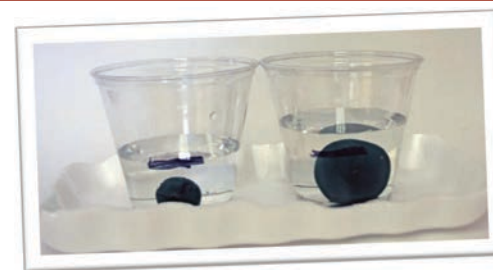


## INTRODUCE

1. **When something is placed in water it takes up *space* and the water *rises*. If the cup is *full*, placing an object in it may cause the water to *spill*, or *overflow*.** Remove the doll.
2. **Let's see what happens when the cup is not as full.** Empty half of the water into the basin. **I'm going to draw a line to show us where the water level is without the doll in the cup.** Use the permanent marker to draw a line on the cup.
3. **Now, I'll place the doll in the water again. Did the water level rise? Mark the new water level on the cup. This line shows us the new water level. Look at both lines. Did the water rise above the line?**

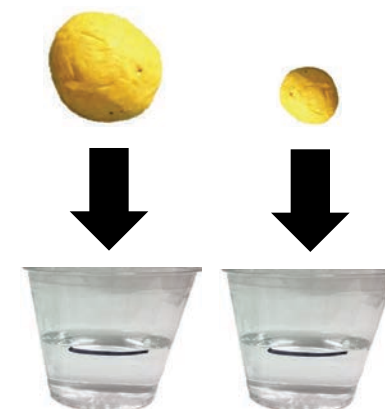


- Place the two 9-oz. plastic cups on the table and pour the same amount of water into each. Place the two clay balls in front of the cups. **What do you notice is the same about these balls?** Prompt children to notice they are both made of clay and both are round. **What do you notice is different about these balls?** Prompt children to notice they are different sizes; one is big and one is small.
- We're going to observe what happens when we place two different sized-clay balls in the cups of water. Let's predict: Which ball will cause the water level to rise *more*? Which ball will cause the water to rise *less*?** Wait for children to make predictions.
- First, I'll mark the water levels on the cups to see where the water level is before we put the balls in. We'll see if the water rises above the line when we drop each ball into a cup.**
- Select two children to gently place a ball into a cup. **What did you notice?** Encourage children to share their observations. Mark the new water level on each cup. **Which ball made the water rise more? Which ball made the water rise less?**



## EXPLORE

- Today, you will each conduct an investigation.** Give each child a bag of clay and two cups half filled with water.
- Allow time for the children to manipulate the clay. They may want to describe how it looks, feels and smells. **Make two balls of different sizes: one large and one small.** Assist as needed until children have made both balls.
- Place the large ball in a cup. What do you notice?** Listen to the children's responses. Have children observe what happens to the water level when they place the ball in the cup. **Now, place the small ball in the other cup.**



4. **What did you observe?** Listen to the children's responses. **Which ball caused the water level to rise more? Which ball caused the water level to rise less?** Accept responses. Have children use their clay to create different sized clay balls and observe the results.
5. Collect the cups and clay. Give the children paper towels to wipe their hands. **You were great observers! We learned what happens when we place objects of different sizes in water.**



## INTERACT

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

- Children may need guidance shaping the clay into a ball. They can roll it on the table or between their hands.
- If you use play dough instead of clay, it may break apart in water and tends to be messy, so have plenty of paper towels ready. Modeling clay works best in water, although it may be hard for the children to roll into balls.
- You could also substitute the two clay balls for objects made of the same material but of different sizes, such as solid balls.

## 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 everyone.
  - **What happened when we put the clay doll in the water?**
  - **What happened when you put a small ball of clay in a cup of water?**
  - **What happened when you put a large ball of clay in a cup of water?**
  - **What do you call it when the water rises and spills out of a cup?**

2. Give each child an *Ask Me About Water* sticker.



Remind the children to tell their family something they have learned about overflow.

3. After you have completed *Lesson #2: Moving on Up* with all children in your classroom, place the ECHOS materials suggested below near your water table to encourage exploration.

## VOCABULARY

- full
- more/less
- overflow
- rise(s)
- space



clay doll



clay balls



plastic cups

