

## Material Preparation

### MATERIALS

- permanent marker
- water table or clear plastic water basin
- clear plastic measuring cup
- funnel
- dropper
- empty 1-liter clear plastic bottle
- gallon-size water bucket or water pitcher
- sheet of chart paper or poster board (approx. 22" x 28")
- water
- plastic grocery bag
- paper towels
- masking tape

For each child:

- ten *Measuring Cup Cutouts*
- *Ask Me About Water* sticker

### TEMPLATES

*Measuring Cup Cutouts*

### PREPARE IN ADVANCE

- Prepare a *Volume Predictions Chart*:
  - Create a two-column chart on chart paper.
  - Write each child's name under the *Name* column.
  - Tape the chart on the wall or on a board at the children's eye level.
- Clean and remove label from plastic bottle.
- Fill 1-liter bottle with water. Do not place the lid on the bottle. Add a strip of masking tape from bottom to top of the bottle.
- Fill water bucket or pitcher halfway with water.
- Follow instructions on *Measuring Cup Cutouts*.

Volume Predictions Chart

Name	Number of Cups
Irene	
Pedro	
Tyler	
Sarah	
Shawn	



### SET UP THE LESSON AREA

- Set up the water table or place the basin on the table.
- Cover the bottle with a plastic grocery bag and place it in the water table or basin.
- Place water bucket or pitcher near water table or basin.
- Place the following items on the table: dropper, measuring cup, funnel, paper towels, masking tape, *Volume Predictions* chart, cup cutouts, and marker.



For each child



## OBJECTIVE

Children will understand that the volume of water can be measured.

## EXCITE

1. Gather the children in the ECHOS lesson area. **I have something that you can swim in and that makes a splashing sound. Can you guess what it is?** Guide the children's responses until someone suggests water.
2. Uncover the bottle. **Yes, water. This bottle is filled with water!** Swing your hand and pretend to accidentally knock over the bottle so that all the water spills into the water table or basin. Dramatize the *accidental* spill. **Oh, no! I am going to need all of you to help refill this bottle.**



## INTRODUCE

1. **What tools can we use to refill this bottle?** Listen to the children's responses. Show children the dropper. **This tool is called a *dropper*. We can use it to measure one *drop* at a time.** Fill the dropper with water from the basin, then place a drop of water on the table top.
2. **How much water is in this little drop? Show me with your fingers, like this.** Model the volume of the drop of water by looking through a small space between your thumb and index finger. **Do you think this is the amount of water we need to refill the bottle? No, this amount is too *small*.**
3. Show children the measuring cup. **This tool is called a *measuring cup*. Sometimes we use a measuring cup in the kitchen to measure things like oil or milk. Who has seen a measuring cup at home?**

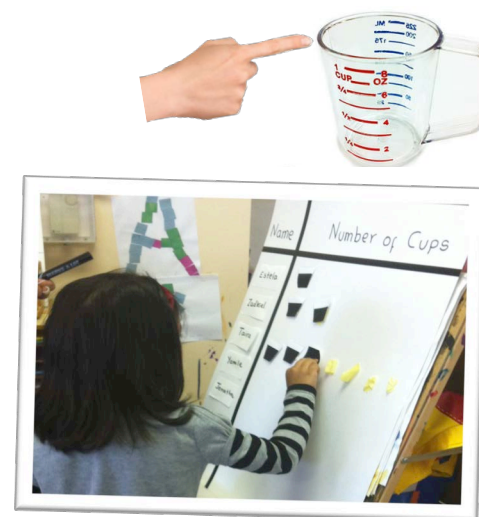


4. Fill the measuring cup with water from the bucket or pitcher, and place it where all can see.  
**How much water is in this measuring cup? Use your hands to show me how much water is in this measuring cup.** Cup your hands together to estimate the amount.  
**Yes, about this much.**
5. **A measuring cup holds a lot more than one drop of water. Do you think the water in this cup is enough to refill the bottle?** Listen to the children's responses.  
**No, it isn't.**
6. **When we talk about how much water there is, we are talking about its *volume*. When there is a little water, it has a smaller volume. When there is a lot of water, it has a larger volume.** Place another drop of water on the table top next to the cup of water.
7. **Which one has a *smaller* volume of water? Yes, the drop. The drop of water has less volume than the cup of water. Which has a *larger* volume of water? Yes, the measuring cup of water.**









## EXPLORE

1. Point to the measuring cup. **We will use this tool to measure how much water we need to fill the bottle.**
2. Point to the *Volume Predictions Chart*. **First, we're going to record your *predictions* on this chart.**
3. **I'm going to ask each of you to make a prediction.** Choose a child to begin.  
**How many cups of water do you think we need to refill this empty bottle?**



4. Tape the child's name card in the column labeled *Name*. Ask the child to predict a number of cups between 1 and 10. Listen to their reply, then count out the same number of *Measuring Cup Cutouts*. Allow the child to tape them in a row under the column labeled *Number of Cups*. Repeat with each child in the group.
5. **Now let's test your predictions.** Hold up a funnel. **This tool is called a *funnel*.** Fit the base of the funnel into the opening of the bottle, and hold it in place. **Watch how the funnel helps us pour the water into the bottle.**
6. Have children take turns carefully filling the measuring cup with water from the bucket and then pouring the water into the bottle through the funnel. **Each time we add a cup of water, I will draw a line on the bottle.** The lines will tell us how many cups we have poured. Use a permanent marker to mark the water level every time an additional cup is added.
7. **Good job pouring the water! The bottle is full. How many cups of water did we pour in the bottle?** Count the lines on the bottle with the children. **What is the volume of water in the bottle? It's the same as the cups of water in the bottle. The volume of water in the bottle is \_\_\_\_\_ cups.**
8. **Let's check the results. Were your predictions close to what we discovered?** Compare the findings to the children's estimates recorded on the *Volume Predictions Chart* at the beginning of the investigation.
9. **What we just did is called an investigation. First, we recorded our predictions on this chart.** Point to the *Volume Predictions Chart*. **Next, we tested our predictions by filling the bottle.** Indicate the measuring cup and bottle. **Finally, we checked the results.** Emphasize that the most important part of an investigation is testing predictions.



Name	Number of cups
Alejandro	 5
Luckeesho	 2
Karla	 5
Jotherlene	 1
Donovan	 3
Jesur	 4



## INTERACT

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

- Water play can make the floor slippery. Be sure to wipe up all spills immediately or use a floor mat to protect the floor. Designate some children to be the official splash wipers to help keep the area dry during the lesson.
- Pouring is a new skill for some children. Some children may need guidance when pouring from the measuring cups into a funnel.
- To make it easier to tape the cups onto the *Volume Predictions Chart*, place loops of tape on each row of the chart and encourage the children to press the paper cups to the tape.

## 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 tools did we use today?**
- **What did we do with the tools?**
- **How many cups of water did it take to fill the bottle?**
- **How did we find out?**

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



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

### 3. After you have completed *Lesson #1: What a Mess!* with all children in your classroom, place the ECHOS materials suggested below near your water table to encourage exploration.

## VOCABULARY

- drop
- dropper
- funnel
- large/larger
- measuring cup
- prediction
- small/smaller
- volume



droppers



funnel

Name	Number of cups
Alexandro	5
Luckeecho	2
Karla	5
Jathurlene	1
Donovan	3
Jesur	4

*Volume Predictions Chart*



measuring cup



## Measuring Cup Cutouts

Instructions:

1. Make one photocopy of this page per child.
2. Cut along the dotted lines.
3. Each child gets ten *Measuring Cup Cutouts*.

