

In the following lesson, students shall demonstrate knowledge of basic science concepts of earth science through direct experience, including an understanding of: (a) concepts related to everyday life through...patterns and how they repeat, and cycles; (b) how the basic needs of organisms are met. Students will have the opportunity to identify the various ways water moves throughout the earth as part of the water cycle. This is a great hands-on activity that students will be excited about.

**Concepts** The water cycle.

Grade Level: 3-4

**Objectives** Students will identify the various ways water moves throughout the earth as part of the water cycle.

**Prior Knowledge** Learning in stations, or learning centers; using a KWL

**Materials**

Cup of water

Ball of clay

Chalkboard and chalk

dry erase board and marker

overhead projector

blank transparency

marker

Computer with hookup to a projection machine (if available), or computers with access to the internet  
Project WET (Water Education for Teachers) website: [www.projectwet.org/festival/wet.html](http://www.projectwet.org/festival/wet.html)

Blank piece of paper for each student

**Procedures** *Introduction*

Tell children slowly and suspensefully, "Let's see if you can guess this *mystery*. Listen for a while, and when I ask for ideas, if you think you know what it is, raise your hand. It's something we're going to learn about this week. / *could be in high in the air, or I could be deep in the ground. You find me in the ocean. Maybe you'd even travel to the North or South Pole and see me there. You also see me here in school every day, and at home, too.* Any ideas?"

If students cannot come up with the correct answer, hint, "It's what makes rain." These mystery questions also show children where we find water naturally, and give them a knowledge base so they can reiterate these concepts when the whole group produces the water cycle later in the lesson. These are conceptual organizers. Children are less likely to say, "We see water on boots in the winter," or "There's water in *my* bathtub."

When one child offers the correct answer, *say*, "You're right! It's water. Now, I'd like *you* to think about this." Read what Arabella B. Buckley (1878) basically said (i.e., some words are modified to suit the audience). Read it dramatically, as if you are the one originally posing the question to your students.

*We are going to spend time today following a drop of water on its travels. If I dip my finger in this cup of water [teacher dips pointer finger in a cup of water] and lift it up again [teacher follows suit], you see a drop of water. Tell me, do you have any idea where this drop has been? What is its job? Can you remember a time when there was no water?*

## ***Learning Activities***

### **1. Introducing the Water Cycle**

Discover students' prior knowledge by asking them how they would answer the questions in the quote, focusing especially on the first (where water has been). Some may reiterate the concepts in the mystery question, while some may come up with new concepts; the latter will demonstrate previous knowledge. Write their answers down on an overhead or chalkboard.

Build on the responses that are correct by repeating them, then asking for any missed parts of the water cycle: "Where else do we find water in nature?" Add these to the list on the board.

Tell children, "Today, we're going to learn that water moves through all of these places, again and again. There's no Water Factory where water is made. There's a certain amount of water that just moves around the world in different shapes. It's like modeling clay. If I made this ball of clay [hold it up] into a pancake [flatten it], it's still the same clay! And if I made it into a bird's nest [raise the edges to make one], it's still the same clay. If I sent it to my sister in Montana, even there it would still be the same clay. Water is like that, too. We can change the way it looks, or where it's found, but it's still the same water."

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### **2. Producing the Water Cycle**

"Since there is no place where water begins, let's try to at least show how it moves between these places. We could call them stations, just like our learning stations [centers set up in the class, to which students are accustomed]. Let's work together to organize the stations that we have on the board. Where might we begin? Ah, with the clouds. How does the water leave the clouds? . . . Where does this rain go?" Lead the students through the water cycle in this manner, constructing a circular diagram using both words and pictures. The teacher may also refrain from suggesting a beginning station and instead begin at any point in the cycle that students suggest, so it will make more sense to them.

### **3. Viewing the Water Cycle**

After the complete water cycle is constructed, go to [www.projectwet.org/festival/wet.htm](http://www.projectwet.org/festival/wet.htm) on a computer attached to an overhead projector. Enter the first activity tent, which plays an illustrated video of the water cycle. Ask children to identify which "stations" of water they see in the clip. As an alternative, have students gather around a classroom computer to play the game.

### **4. Demonstrating and Planning for Learning**

The teacher hands out a piece of paper for each student. Working in groups of two, students fold their paper into three columns and title each one K, W, or L. They fill out the first two sections: what they now know about the water cycle, and what they want to know about the water cycle. For the sake of time, these are handed in to the teacher; if time allows, they may share these with another pair before submitting them to the teacher (an extension activity if the teacher finds she has extra time).

## Conclusion

To enhance concentration and motivation, introduce the "mystery question" that they will think about this week; students will get clues to this as they move throughout various learning stations. The question is the following: "Water can be really tricky. It can disguise itself in three ways. What are those ways?"

"Start thinking about that during the stations this week, and we'll see if we can all come up with an answer together on Friday,"

## Evaluation

Evaluation is based on the students' KWL charts. The teacher notes how much the students have "owned" the information presented today (as demonstrated in the first column), and if they are formulating successful advance organizers to shape their learning over the course of the week (as demonstrated in the second column). If these are not demonstrated successfully, the teacher writes questions she'd like children to think about, or other suggestions, on post-it notes, which she then attaches to their charts. The charts are then returned to the students, who will finish the last section (what they Learned) at the close of the unit.