

## 5.5 Walter Molecule Introduces the Water Cycle

Cart Title: Water Cycle

### Core Connection

**Fourth Grade Science Standard I:** Students will understand that water changes state as it moves through the water cycle.

**Objective 1:** Describe the relationship between heat energy, evaporation and condensation of water on Earth.

**Objective 2:** Describe the water cycle.

**Summary:** Cart Four at the Museum focuses on the water cycle and presents the lesson through an animated computer program and a three-dimensional cut away model. The computer program follows the adventures of Walter Molecule as he changes from one form of water to another.

#### Lesson Learning Objectives:

1. Students will explain the water cycle as depicted in the program.
2. Students will describe the effects of sun and temperature on the process.

**Materials:** paper/pencil

#### Instructions:

1. After returning to the classroom, divide students into groups representing each phase of the water cycle and pictorially explain the process.
2. Bring the class back together and have them place the processes in the correct order and explain what their phase does as well as the effects of the sun and water on the process.

**Time Approximate:** 50 minutes

**Extension:** Select one or more of the extension activities that follow.

## Weather/Water Cycle Extension Activities

### 1. Write your own story

Students are to create a story about the water cycle. They should identify a main "character" and have this character travel. Students should then work together to edit and finalize their stories.

Using a variety of art supplies students should create a picture depicting a part of the story.

### 2. Create a class mural

Make a water mural that depicts the many ways in which the water cycle affects our everyday life. Be sure to include examples from your own neighborhood and community. Students may cut out pictures from magazines or draw their own.

### 3. "3 Ps" for surface tension

You will need a penny, petri dish, pepper, toothpick, drop of dishwashing liquid, and water. Fill the petri dish nearly full of water. Sprinkle some pepper on the surface of the water. Make a note about what you are observing. Write a hypothesis, an 'if - then' statement, to predict what will happen if you touch the surface of the water with a toothpick that has been dipped in detergent.

How do your findings compare with your hypothesis?

### 4. Surface and ground water model

You will need a large jar or small aquarium, plastic straw, sand and gravel mix, small pebbles, plastic trees and plants, and water.

Position the gravel in the jar or aquarium at about a 45-degree angle. Slowly add water until it covers about half of the gravel slope. Place the pebbles and plants on the dry half to simulate land. Students should observe that some water is visible (surface water) and some water is only visible through the glass sides of the container (ground water). Use a piece of plastic straw to "drill" a well into the gravel to the water table. Write a hypothesis, an 'if - then' statement to predict what will happen to the ground water if more water is added to the visible pool. Observe. How do your findings compare with your hypothesis? Write a hypothesis, an 'if - then' statement to predict what will happen to the water if more water is added to the dry portion of the gravel.

Observe. How do your findings compare with your hypothesis?

## 6.0 Additional Reading

### Utah's Changing Use of Natural Resources

Utah is rich in many natural resources. People have used these resources for hundreds of years. Some resources are in great demand while others are somewhat forgotten. The importance placed on natural resources changes depending on the needs of the people. For example, do you remember a game you liked to play or something that you enjoyed collecting when you were young? Is it still as important to you today? Old toys have been replaced by games and things you now like better. Changing needs require different resources.

Each group of people living along the mountains of the Wasatch Front have sought different natural resources to meet their needs of income, housing, and food.

Read the following section to identify the needs and wants of people who have used the resources of the Wasatch Front and how those needs have changed.

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Early Native Americans who lived along the Wasatch Front valued the natural resources of local plants and animals needed for food, shelter, and clothing. Mountain men prized the beautiful furs that made trapping popular in the mountains long before Utah was a state.

When the Mormon pioneers arrived in the Salt Lake Valley in 1847, they looked to the valley as land where they could settle and grow crops. To them the surrounding mountains provided a water source, safety from their enemies, a route to a new home, and a place for summer picnics.

After the Mormons arrived, the United States government sent military troops to the Salt Lake Valley. To the men stationed at Fort Douglas, the mountains offered the dream of riches. Many began mining for natural resources such as precious metals. The soldiers' success encouraged thousands of people to move to this area hoping to strike it rich. After a few years, the mining industry brought in less and less money as the natural resources became scarce or too expensive to harvest. People moved away and many of the canyon communities became ghost towns. A few hardy souls stayed. They needed a home and enjoyed mountain living.

Aside from being a major source of water in the valleys, the snow on the mountains became a key natural resource for recreation. Soon recreational skiing became a popular activity for people in northern Utah. Ski resorts developed throughout the Wasatch Front. Utah's climate made it possible to train during the winter and the summer. Utah resorts grew to include Olympic training facilities and ski/snowboard runs. To attract athletes from all over the world, Utah also sponsored major ski competitions.

## **Student Activities: Utah's Changing Use of Natural Resources**

### **Who has used the resources of the Wasatch Front?**

Assign Reading #1

Ask students to list all the people in the reading whose needs were met by Utah's natural resources.

### **What did each group need?**

Use the above list and write the needs and wants of each group of people.

### **How did the use of resources change?**

Ask students to create a timeline using a note card for each group of people listing in the reading. On each note card list the approximate time period, the valued resources and the groups of people who value the resource. Place the note cards in chronological order.

Discuss the ways in which needs and wants change.

### **What resources do you value?**

Encourage a discussion of supply and demand. Ask students to write down products and possessions that they have valued over time. List the products and discuss how trends encourage young people to purchase and value similar items.

You may wish to graph student possession trends.

### **Predicting the Future**

Is it possible to predict the future? Economists attempt to predict future trends and needs. Their predictions affect many areas of everyday life, from futures trading on the stock market, to the types of cars and clothing sold each year.

After a student discussion of the reading, ask students to make predictions as to how the resources of the Wasatch Mountains might be used in the future. How might the ski resorts change? What future effects might result from the 2002 Olympic Winter Games? What resources might have the most value in the future? Students may wish to write a news article describing their predictions.