

Wipe Out

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Grade Level: Kindergarten

Time Allotment: 40 minutes

Overview: From streaming video, web sites, and hands-on activities, students will develop an understanding of the properties of water. They will also recognize that water has three different states, flows down hill, and that some materials will float in water, while others will sink.

Subject Matter: Science

Learning Objectives:

The students will be able to:

- Understand the flow of water
- Be able to observe and test the properties of water

Standards:

- K.5 The student will investigate and understand that water flows and has properties that can be observed and tested. Key concepts include
- a) water occurs in different states (solid, liquid, gas);
 - b) the natural flow of water is downhill; and
 - c) some materials float in water, while others sink.

Media Components:

Streaming Videos:

- *Shasta Dam*
- *Matter and its Properties: Exploring Phases of Matter.*
- *Simply Science-Water's Physical Properties*

These are United Streaming Videos which can be found at www.unitedstreaming.com. You will need to download the entire videos for use in this lesson.

Web Sites:

- H2O University, Virtual Classroom- http://www.saws.org/education/h2o_university/virtual_classroom/ can be used to show the flow of water by using the Hydrological Cycle flash animations on the page.

Materials:

For the Introduction and Culminating Activities you will need:

- bucket of water
- small rock
- button
- woodchip
- washer
- Ivory soap
- cork
- pumice stone
- colored craft sticks

The teacher will also need the Smart Notebook program which needs to be downloaded from http://www.smarttech.com/support/software/sb_win.asp . With this you will create your lesson to show the T-Chart, show your streaming videos and web sites. In Smart Notebook you will be using a picture or drawing of water, in its liquid state, its solid state (with an explanation of how it turns into a solid) and in the form of water vapor (with an explanation of how it changed to that state). This lesson can be done with or without the use of a SmartBoard. If a SmartBoard is not used you will need some sort of projection or viewing device such as a LCD projector or a 27" TV/Computer Monitor.

Preparations for Teacher:

- Preview and cue the streaming videos as indicated in the Learning Activities section. (The teacher will need to download the 3 streaming videos into a folder on the desktop of a computer or burn them on a disk. You can also copy them into Smart Notebook presentation for use with a Smart Board. By doing this and using an LCD projector or other presentation device the teacher may show the clips in full screen on a SmartBoard, television or on a pull-down screen so that the students will have an easier time seeing them.)
- The teacher should have all websites bookmarked for easier use. When using video segments, websites, or other multimedia elements, always provide students with a **FOCUS FOR MEDIA INTERACTION**. This is a specific task to complete and/or identify information during or after the viewing of the intended multimedia.

Introductory Activity:

The following activity will prepare the students for the lesson on water.

1. Have the class sit in a circle. **Say** "Today class, we are going to learn about water. We are going to learn that water has three different ways of existing. We are also going to learn that water can only flow downhill and that some things can float on water and that other things sink." Set out the items from the teacher's

material list and say “Which of these items do you think will sink and which do you think will float?” Make a T-Chart to record the children’s guesses.

2. After the predictions are made and recorded, **say** “Class we are now going to watch some video about water and look at some web sites to learn all about water. When we finish watching the videos and looking at the websites we will come back to your guesses and see if they are right.”

Learning Activities:

Step 1. Provide students with a **Focus for Media Interaction** by saying, “Class, I would like for you to watch and listen to this short video clip and see if you can figure out what the narrator is talking about. **Start** streaming video, *Matter and its Properties* at time index 0:39 when you see a block of ice and **pause** it at time index 1:12 when you see a mountain lake. **Say**, “What do you think the narrator is talking about?” (Ans.: Water) **Say**, “That’s right, water. But did you know that each of the 3 stages we saw it in has a name? I would like for you to watch and listen to the next clip to see if you can tell me the name of the stages water can exist in.” **Start** the clip where you paused, and **pause** at 1:44 when you see the thermos. **Ask**, “What are the 3 stages water can exist as?” (Ans.: Liquid, solid, and water vapor.)

Step 2. **Say**, “We just saw that water can exist in 3 different stages. It can exist as a liquid which is the way in which we most commonly see water, it can exist as a solid also known as ice, and it can exist as a water vapor which is steam. Do you know what causes water to have these different stages?” Provide **Focus for Media Interaction** by saying “Let’s take a look at the following video and see what causes water to exist in these three stages.” **Start** streaming video, *Water a First Look* at time index 4:19 when you see a faucet and **stop** at time index 6:01 when you see a little girl coming into the picture. **Say**, “What are the 3 different stages of water and what causes them?” (Ans. Water exists in its natural state which is a liquid, then when it gets cold it freezes and turns into ice, and then when it gets hot it turns into steam. This is what causes the three states of water.)

Step 3. Say, “We’ve seen the three different states of water: Liquid, Solid and Water Vapor. Water, as we’ve seen so far, has several different qualities. Let’s see if we can find another.” Provide a **Focus for Media Interaction** by saying “I would like for you to watch the following video clip and see if you can figure out how water flows. Let me give you one hint before we start. Water can only flow in one direction. So pay close attention to this clip to see if you can see the answer.” **Play** streaming video clip *Shasta Dam* in its entirety with the sound turned down. **Say**, “Which way did the water flow on the dam? (Ans. Down). **Say**, “That’s right water can only flow down. Water can’t climb a hill or dam, it can only flow down.” **Ask**, “Do you know why water can only go down?” (Ans. Gravity. Explain that gravity is an invisible force that only lets things go down on our planet, not up. It’s what keeps everything from flying off into space.)

Step 4. Say, “Let’s go look at a computer animated model of how water flows down hill.” Go to bookmarked page or use the hyperlink you added in notebook and open the following page:

http://www.saws.org/education/h2ouniversity/virtual_classroom/hydrologic.shtml.

Step 5. Say, “Let’s take another look at the downhill flow of water. Provide **Focus for Media Interaction** by saying “Watch carefully to see how the rain water flows after the storm.” Start the flash animation by clicking on the cloud. To move through the different stages, click on the grey forward arrow on the right side of the picture. After completing the flash cycle **ask,** “After it rained, which way did the water run?” (Ans.: Downhill). **Ask,** “Why does the water run down hill? Explain your answers.” Let the students explain their answers.

Step 6. Say, “We have seen 3 states that water can assume: liquid, solid and water vapor. We have also learned that water can only flow downhill. Let’s now finish the activity we started at the beginning of this lesson and see if we can find what sinks and what floats.

Culminating Activity:

Activity One

Say, “At the beginning of this lesson we made guesses about items that might sink or float. We are now going to check and see which items sink and which will float. I am going to give you a chance to change your guess. Let’s go back through the items and see if you want to change your guess.” You should create another T-Chart in Notebook to record any changes the students make. After doing this, proceed with the experiment and see which items sink and which float and compare this to the students’ guesses.

Activity Two

You will need a bucket of water and colored craft sticks for this activity. Take the children outside on the playground to the slide and divide them into two groups. **Say,** “What do you think will happen when I pour the water on the slide?” Wait for answers. **Say,** “Let’s pour the water on the slide and find out,” Pour some of the water at the top of the slide. **Ask,** “What happened when we poured the water on the slide?” (Ans.: The water ran down the slide) **Ask,** “Why did the water run down the slide?” (Ans.: Because it’s like water running down hill) **Say,** “That’s right; the water is running down hill. **Ask,** “Why is the water running down the hill?” (Ans.: Gravity makes the water flow down hill) **Say,** “Yes, gravity makes the water flow down hill. Now that we have done this, let’s have some fun. Let’s have a stick race!” Pour water down the slide and let the children race their craft sticks down the slide. This will reinforce that water runs down hill.

Cross-Curricular Extensions:

Math:

Water has weight! Have the class use water on a counter balance scale to find the weight of water. Then use the water as the counter weight on the scales and find out how other items compare to water in weight. Ex.-. what weighs more, pencils or a cup of water, a block or a cup of water etc.?

Art:

Using thinned paint and a straw the children can create art. Thin the paint with water and place small amounts on art paper. Using a straw, the students can blow the different colors of paint into patterns. This will show students the flow of water in its liquid state.

Technology:

- Create a web quest for the students to follow on the three states of water, the flow of water and which objects sink and float in water.
- Go on a digital scavenger hunt taking picture of water in its different states then create a slide show with the students using Power Point or another presentation program for the class.

Community Connections:

- Invite a person from the local water shed committee into the classroom and have them discuss how water flows downhill and what happens to that water.
- Invite a college professor or high school teacher in to do science experiments with the class on the 3 states of water.