



Earth: The Water Planet

Grade Level:

3-4

Subject Areas:

Earth Science, Visual Arts

SD StandardsScience

4.E.1.1.

4.E.2.1.

Visual Arts

Standard 1

Setting:

Classroom

Skills:

Creative Thinking,
Deduction

Prior Preparation:

Collect a large amount of newspapers. A suggestion may be to have students bring some papers from home for a period of a month. Tear a large portion of the collected newspapers into strips approximately 1" wide. Review with the students the basic steps of the water cycle. Explain that Earth is unique in our solar system by having the water cycle and that all life depends on it.

Vocabulary:

Gas, liquid, solid

Objective: Students construct a papier-mâché planet Earth and learn about the water resources on the planet.

Materials:

A round balloon

Lots of newspaper, torn in strips

Paste (flour and water mixture)

Wooden spoon

Copies of maps: Eastern Hemisphere, Western Hemisphere, World

Paints and brushes and markers

Background:

Water is found throughout our planet in one of three forms: solid, liquid or gas. The water cycle revolves around all three forms. The solid state of water is in icecaps and glaciers, the gas form is in evaporation and steam, and the liquid form, of course, is in rivers, wetlands and oceans.

Water on Earth is stored in several locations: oceans, rivers, lakes, wetlands, glaciers and icecaps, and underground in aquifers. It is estimated that the total global water amount is 332,500,000 cubic miles. 321,000,000 cubic miles are stored in the five oceans on Earth. 8,404,000 cubic miles of water exist as fresh water.

Water moves around Earth through the water cycle. The oceans are considered the "storehouse" of water. Oceans move water around using tides and currents. These cause the oceans to always be in motion. Currents such as the Kuroshio Current (Japan) and the Gulf Stream Current help change the climate, which in turn, influences the water cycle.

Freshwater represents only about 3% of all water on Earth. About 20% of that amount is stored in Lake Baikal in Asia – the largest freshwater lake in the world. Another 20% of that amount is stored in the Great Lakes between the US and Canada. The amount of water in rivers, streams and lakes is always changing due to inflows and outflows. The water cycle is essential to life on Earth.

Procedure:

- See attached instruction sheet.
- Print a copy of the Western and Eastern Hemisphere maps for each student. Also print off a copy of the World map for each student.

- Hang completed Earth planets from the ceiling before parent-teacher conferences to encourage your students to do a “show and tell” about their globe.

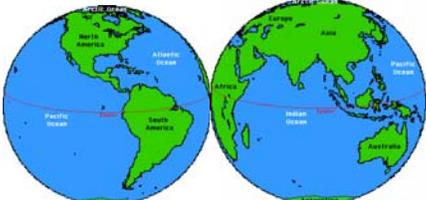
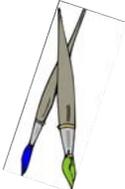
Vocabulary:

<i>Gas</i>	A state of matter; a gas always has the same shape as the container it fills
<i>Liquid</i>	A state of matter; a liquid always has the same shape as its container
<i>Solid</i>	A state of matter; a solid generally has a shape of its own

Extensions

- Have class perform a Reader’s Theater, such as The Water Cycle Adventure. Encourage the class to make props, scenery and to volunteer for roles. Perform the Reader’s Theater for the kindergarten class at your school.
- Visit the Enchanted Learning web site: www.enchantedlearning.com. There are a variety of activities to do there, including writing a planet report (plus a rubric). This will give your students an opportunity to explore space, the final frontier.
- A good companion activity to this would be “Water Cycle Cool Cards” which are available on the Big Sioux Water Festival web site: www.bigsiouxwaterfestival.org

Instructions for constructing a papier-mâché planet Earth

	<p>Make a simple, thin glue from flour and water. Mix 1 cup of flour into 1 cup of water until mixture is thin and runny.</p>
	<p>Tear a lot of strips of newspaper. Strips should be about 1 inch wide; the length doesn't really matter.</p>
	<p>Blow up and tie a round balloon. Each student can do this or you can do it ahead of time.</p>
	<p>Papier-mache: Dip each strip of paper in the glue, wipe off excess, and wrap the strip around the balloon. Leave a small space by the neck of the balloon from which you can extract the deflated balloon. Have at least three layers surrounding the balloon forming a shell. Let each layer dry overnight, before applying additional layers. Next, let the globe dry completely. This could take a couple days. When the glue completely dries, the balloon may pop inside the shell. If not, you'll need to pop it so that the student can pull it out.</p>
	<p>Hand out copies of the maps of the Western and Eastern Hemispheres. Students should use a pencil to draw a line around the midsection of the balloon that will represent the equator. This can be a time to discuss water resources in the middle of the globe (what countries are located along the equator and what their water resources are). Draw the seven continents on the globe.</p>
	<p>Working on a bed of newspapers, have each student paint the continents green. Let the paint dry completely, then use blue paint to represent the water on Earth.</p>
	<p>Using the World map as an example, have students identify the rest of the major features on Earth. He/she can mark where they live, the equator, poles, etc. Upon completion of the globes, hold a discussion about water resources in South Dakota.</p>