

2nd Grade Earth Science Unit

Grade level: 2

Unit: Earth - Water

Time Frame: Sept. - Oct.

Unit Essential Questions:

- How can water change its form?
- Where does drinking water come from?
- How do we use water?

Big ideas:

- More of the Earth's surface is covered with water than it is with land.
- Most of the water on the Earth is salt water, but there is also fresh water on Earth.
- Ground water is water below the surface of the ground.
- Water moves from high places to low places.
- We use water for many different things. It is very important in our lives.
- Pioneer families who lived long ago used less water than modern families.
- Pioneer families had to haul water to where they needed it.
- Modern families get water from water delivery systems.
- Allowing particles to settle to the bottom is one way to clean dirty water.
- Adding a chemical to dirty water is another way to clean dirty water.
- Filtering water is another way to clean dirty water.
- Some substances are toxic and should not be put down the drain.
- It takes a lot of water to do everyday jobs.
- Solids keep their shape, but liquids take the shape of the container they are in.
- Water can be a liquid or a solid.

Essential Concepts/Skills/

GLCE's:

Children will:

- * identify water sources (e.g., wells, springs, lakes, rivers, oceans) (E.FE.02.11).
- * identify household uses of water (e.g., drinking, cleaning, food preparation) (E.FE.02.12).
- * describe the properties of water as a liquid (visible, flowing, shape of container) and recognize rain, dew, and fog as water in its liquid state (E.FE.02.13).
- * describe the properties of water as a solid (hard, visible, frozen, cold) and recognize ice, snow, and hail as water in its solid state (E.FE.02.14).
- * describe how rain collects on the surface of the earth and flows downhill into bodies of water (e.g., streams, rivers, lakes, oceans) or into the ground (E.FE.02.21).
- * measure the volume of liquids using common measuring tools (graduated measuring cups, measuring spoons, graduated cylinders, and beakers) (P.PM.02.14).
- * share ideas about water and its properties through purposeful conversation (S.IA.02.12)
- * construct simple charts and graphs from data and observations about water use (S.IP.02.16).

NGSS:

ESS2.C: The Roles of Water in Earth's Surface Processes

Water is found in the ocean, rivers, lakes, and ponds. Water exists as solid ice and in liquid form (2-ESS2-3)

PRE-PLANNING CONSIDERATIONS

- Materials can only exhibit properties of one state of matter.
- Younger students tend to view the water cycle by focusing on the properties of water. They see the water cycle primarily in terms of freezing and melting.
- They see phase changes in the water cycle as being a series of freezing and boiling episodes without evaporation or condensation. In order for them to fully understand the water cycle and a mechanism for rain, students need to understand evaporation and condensation.
- Rain comes from holes in clouds.
- Rain comes from clouds sweating
- Rain occurs when clouds get scrambled and melt.
- Rain occurs when clouds are shaken.

Vocabulary

Critically Important Vocabulary

Instructionally Useful

<p>lake ocean river/stream surface water waterfall water source</p>		
--	--	--

Supplies to gather or things that need to be done:

- | | |
|-------------------------|----------------------------|
| Alum | Aluminum pie pan |
| Blindfold | Bowls |
| Box | Buckets |
| Camera | Coffee filters |
| Counting objects | Crayons |
| Cups | Dish pans |
| Envelopes | Eyedroppers |
| Food Coloring (blue) | Funnels |
| Globe | Goggles |
| Ground black pepper | Ice |
| Masking tape | Measuring cups |
| Measuring spoons | Milk jugs |
| Overhead transparencies | Overhead transparency pens |
| Paper (drawing/graph) | Paper clips |
| Paper cups | Paper towels |
| Pencils | Permanent markers |
| Potatoes | Powdered milk |
| Salt | Sand/Gravel |
| Scissors | Scrubber |

Shovel
Spoons
Straws
Two-Liter bottles

Sieves
Stirring sticks
Tape

Summative Assessment Suggestions

1. Describe how water exists in liquid and solid states and explain in writing with illustration how it changes from one form to the other (E.FE.02.13, E.FE.02.14, S.IA.02.12).
2. Identify uses of water within the school and describe one of its sources (E.FE.02.11, E.FE.02.12).
3. Identify one use of water either at home or at school and create an investigation that measures the amount of water used within one day, one hour, and one minute (E.FE.02.12, P.PM.02.14, S.IP.02.16).
4. Explain in writing, with illustrations, how water gets to the kitchen sink (E.FE.02.12).
5. Identify the major surface water features and create models of two of them. Describe how these surface water features are used by the public (E.FE.02.11, S.IP.02.16).
6. From the perspective of a raindrop, write a story with illustrations describing what happens to it once it falls (E.FE.02.21, S.IA.02.12).

Additional Resources

Recommended (not required) Instructional Resources

Student Resource

Michigan eLibrary <http://kids.mel.org/>

Cole, Joanna. *The Magic School Bus: At the Waterworks*. New York: Scholastic, Inc., 1986.

Collard, Sneed. *Our Wet World*. Watertown, MA: Charlesbridge, 1998.

Dorros, Arthur. *Follow the Water from Brook to Ocean*. New York: HarperCollins, 1991.

Gibbons, Gail. *Marshes and Swamps*. New York: Holiday House, 1998.

Hewitt, Sally. *Using Water*. New York: Crabtree Publishing, 2009.

Holling, H.C. *Paddle to the Sea*. Boston, Houghton Mifflin, 1969.

Hooper, Meredith. *The Drop in My Drink: The Story of Water on Our Planet*. New York: Viking, 1998.

The Importance of Water. 100% Educational Videos. 1998. Discovery Education. 29 Jun 2009 <<http://streaming.discoveryeducation.com/>>.

Lauw, Darlene. *Water*. New York: Crabtree Publishing, 2003.

Petty, Kate. *I Didn't Know That Some Trains Run On Water*. Brookfield, CT: Millbrook Press, 1997.

Spier, Peter. *Rain*. New York: Doubleday, 1982.

Wick, Walter. *A Drop of Water*. New York: Scholastic Press, 1997.

Teacher Resource

Delta Science Module: Investigating Water. Hudson, NH: Delta Education, 1988.

Hoover, Evalyn, et al. *Primarily Earth*. Fresno, CA: AIMS Education, 1996.

Lund, Karen. *Water, Stones, and Fossil Bones*. Arlington, VA: National Science Foundation Association, 1991.

Nelson, Dennis, et al. *Project Wet*. Houston TX: The Watercourse and Western Regional Environmental Education Council, 1995.

Murphy, Bryan. *Experiment with Water*. New York: Scholastic, 1991.

Websites:

http://www.fcwa.org/story_of_water/html/story.htm (The Story of Drinking Water)

<http://www.kidzone.ws/water/> (Water Cycle with printouts)

<http://www.schoolfamily.com/print-and-use-tools/document/677-coloring-page-water-cycles-in-three-forms> (3 forms of water coloring page)

<http://tinyurl.com/ovgo75v> (water for kids ebook- with worksheets)

http://water.epa.gov/learn/kids/drinkingwater/teachers_k-3.cfm (additional water cycle activities)

<http://waterlife.nfb.ca/#/> (Water is... A Freshwater Presentation)

<http://games.noaa.gov/oscar/> (Where Rivers Meet the Sea Game)

<http://www.epa.gov/watersense/kids/games.html> (Water sense Game)