

Water Cycle Reading and Writing

Students will practice English language arts skills by listening to or reading a story about the water cycle and then writing a similar tale.

Objectives: Students will respond to the story in ways that require:

- reading, listening, and writing for information and understanding;
- reading, listening, and writing for literary response and expression;
- understanding that the water is recycled by natural processes including evaporation, condensation, precipitation, and runoff;
- understanding that matter, including water, is made up of particles whose properties determine its observable characteristics.

Grade level: Elementary (Grades 3-5)

Subject Areas: English Language Arts, Science

New York State Learning Standards:

English Language Arts Standards 1, 2

Mathematics, Science, & Technology Standard 4

Skills:

- Read and listen to acquire facts and ideas from texts.
- Gather and organize information about environmental phenomena.
- Write to interpret, apply, and transmit information.
- Write for literary response and expression.

Duration:

Preparation time: 5 minutes

Activity time: 15 minutes for reading; 30-45 minutes for writing

Materials: Each student should have:

- Sheets of lined paper
- Pencil or pen



Background:

The water cycle describes the continuous circulation of water from water bodies and the land to the sky and back again. It is truly a cycle; there is no beginning or end. Water can change states—become a gas, liquid, or solid—at various places in the cycle.

The water cycle is powered by solar energy and gravity. Water evaporates into the atmosphere as water vapor. This gas then condenses into droplets that gravity pulls down to earth as precipitation and downhill back to the oceans as runoff. Some precipitation infiltrates the ground and becomes groundwater. It may stay there for millions of years, or bubble up in springs, or be taken up by plants and released back to the air through transpiration from their leaves. Water may also be frozen for centuries in snowpacks or glaciers before melting and rejoining the cycle.

There is about as much water on earth today as there was in the time of the dinosaurs. The water you drink today could have been in a waterhole used by dinosaurs, or frozen in the great glaciers that covered the Hudson Valley 20,000 years ago.

Activity:

1. Introduce the lesson by telling students they will take a journey with Walter the water molecule. They will frolic in the ocean, float into the atmosphere, splash down on tree tops, slip between the leaves on the forest floor, and rush over waterfalls.
2. Read the story aloud. Point out how Walter's adventures relate to the water cycle. Use attached diagram and water cycle vocabulary if appropriate to grade level.
3. Have students write their own stories about Walter's further adventures in the water cycle (see introduction to the assignment at the end of the reading). Specify a length depending on the abilities of the students.

Assessment:

- Collect and review students' stories or have the stories read aloud to the class.
- Have students identify the states of water that they encounter daily (liquid in puddles; water vapor from your breath; ice in ice cubes).
- Ask students to identify water cycle processes that Walter experienced.

Resources:

- Berger, Melvin and Gilda. *Water, Water Everywhere*. A Discovery Readers Book: Ideals Children's Books, Nashville: 2003. Appropriate for ages 5-9.
- Locker, Thomas. *Water Dance*. Voyager Books, NY: 2002. Appropriate for ages 4-8.
- McKinney, Barbara. *A Drop Around the World*. Dawn Publications, Nevada City, California: 1998. Appropriate for ages 4-8.
- *River of Words* is an annual international poetry and art contest for K-12 students on the theme of watersheds. Visit their website, www.riverofwords.org, for more information about the contest and an interdisciplinary watersheds curriculum guide.
- In the Hudson Valley, NYSDEC's Stony Kill Farm Environmental Education Center offers *River of Words* watershed poetry lessons for grades 3-12 as well as Project WET teacher trainings. Email skfarm@gw.dec.state.ny.us or call 845-831-8780.



Vocabulary from Walter the Water Molecule Story:

brook: a small stream

creek: a stream of water usually smaller than a river

crest: a peak, highest part, or topmost edge

current: movement of water

drift: to move along without effort

erode: to wear away by or as if by the action of water, wind, or glacial ice

exhale: to breathe out

fin: a thin extension of a water-living animal's body, used in guiding its movement

horizon: the line where the earth or sea seems to meet the sky

lull: to cause to sleep or rest

molecule: the smallest particle of a substance that has all the characteristics of the substance

particle: a very small piece

river: a natural stream of water larger than a brook or creek

scales: small flat plates that form an outer covering on the body of some animals

seawater: water in the ocean that contains salt

spout: a hole that shoots liquid out with force

stream: a small body of running water

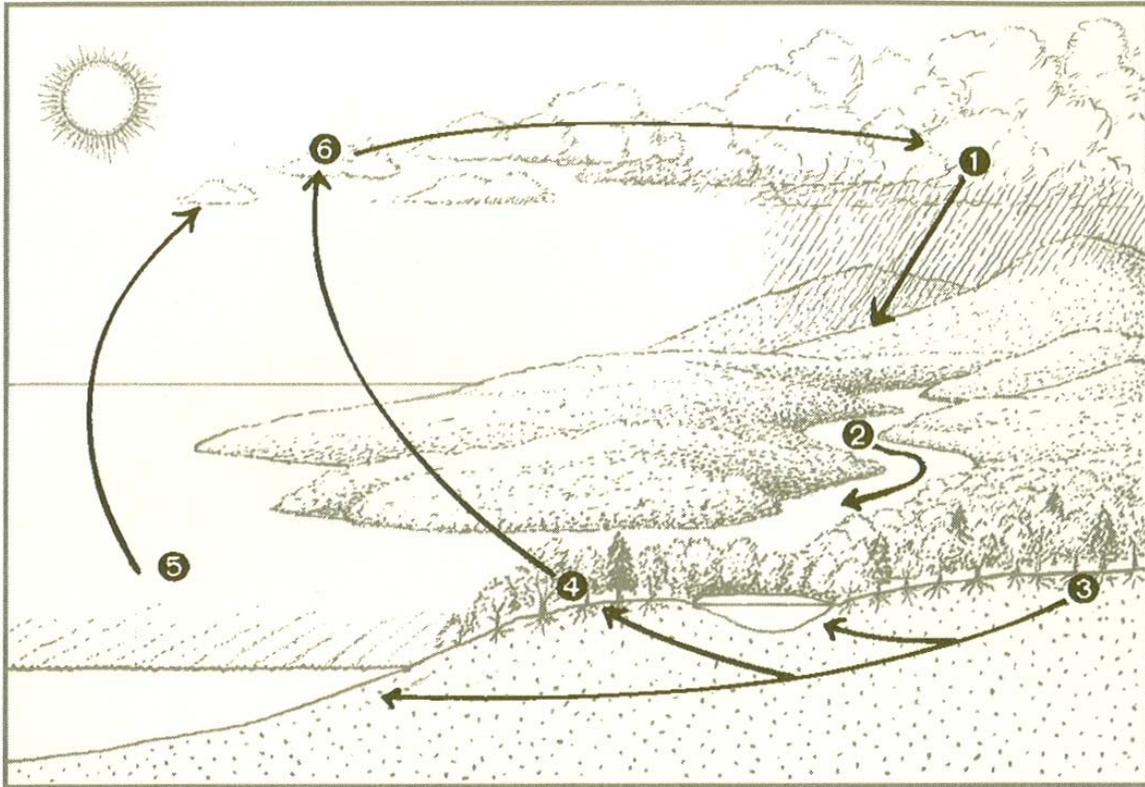
tides: the alternate rising and falling of the surface of the ocean

valley: an area of lowland between ranges of hills or mountains

whirlpool: water moving rapidly in a circle



The Water Cycle



In this illustration of the water cycle, **precipitation** falls to earth (1) and enters streams flowing seaward as **runoff** (2) or **infiltrates** into the ground (3). **Groundwater** feeds streams and lakes and is taken up by plants (4), from which it **transpires** into the atmosphere as water vapor. **Evaporation** from the sea (5) and other surface waters also supplies water vapor to the atmosphere. There, the vapor **condenses** to form clouds (6) and eventually falls to earth again as precipitation.

Illustration from Stanne et al, *The Hudson: An Illustrated Guide to the Living River*, used by permission of Hudson River Sloop Clearwater.

condense: to change from a gas to a liquid state of matter

evaporate: to change from a liquid to a gas

groundwater: water present in soil and rock underground

infiltrate: to enter [ground] by moving into spaces between particles

precipitation: water falling from the sky as rain, snow, hail, or sleet

runoff: water, from rain or melting snow, that flows over the ground

transpire: to give off vapor through the outer covering of a living thing

