

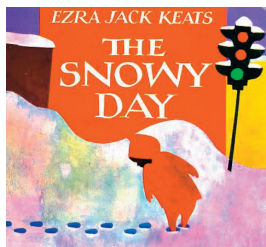
Teaching through Trade Books

Activities inspired by children's literature

Water Wherever

This month's activities occur at a time when many students are highly aware of the water cycle. Perhaps students are excited about the chance of snow falling the next day, amazed at the amount of rain that's fallen in their town this month, or intrigued by being able to see their breath in front of them. Whether rain, sleet, or snow, February weather across the country provides students with opportunities to observe the many different ways the water cycle affects our daily lives.

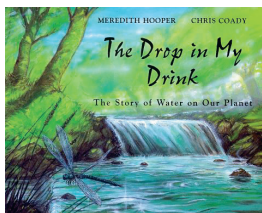
This Month's Trade Books



The Snowy Day
By Ezra Jack Keats.
27 pp. Viking, 1962.
ISBN 0-670-86733-0.

Synopsis

The Snowy Day tells the story of young Peter's delightful day in the snow. Peter makes a snowball and places it in his pocket only to find that it disappears. At the end of the day, the disappearance of Peter's snowball from his jacket pocket offers the perfect starting point for fun, in-class discussions of the water cycle.



The Drop in My Drink: The Story of Water on Our Planet
By Meredith Hooper and Chris Coody.
28pp. Viking, 1998.
ISBN: 0-670-87618-6.

Synopsis

The Drop in My Drink is a thorough introduction to the water cycle. Beginning with water's journey through outer space, the book offers not just global but universal perspective on the voyage of a water molecule. Intriguing examples of meteorological, geological, and biological perspectives of the water cycle abound. The book ends with a discussion of conservation, an inclusive water cycle graphic, and interesting facts.

Book Connections

This month's trade books are a good starting point for the study of the water cycle and the activities offered here. The charming story of *The Snowy Day* provides younger elementary science students with an intriguing mystery to kick off an investigation of the water cycle. The fascinating narrative and vivid illustrations of *The Drop in My Drink* focus on both the global scale of the water cycle and our everyday connection with water.

Simplified illustrations of the water cycle often feature arrows showing water as it rises as a gas from the oceans to the air, cools back to liquid to form clouds, and then falls back down to the land where it flows back into the oceans to start the process all over again. The true picture of the water cycle is much more extensive. During its travels around the globe, water will also spend time in living organisms, glaciers, ice caps, underground aquifers, and caves.

Studying the water cycle gives elementary students a wonderful way to make connections between their lives and the planet Earth. Students tie their experiences of playing in the rain or jumping in puddles to the water found everywhere on Earth. Few other science concepts are more readily experienced or more quickly learned than the different features of the water cycle because students see evidence of the actual cycle every day.

Not only are students excited about the topic, the water cycle also introduces many other important elementary science topics, such as states of matter and protecting Earth's resources.



Keywords: Water cycle
at www.scilinks.org
Enter code: SC020401

Trade Book–Inspired Investigations

This month’s first selected trade book, *The Snowy Day*, presents an intriguing science mystery for young students, even those who don’t live in a snowy climate. The second book, *The Drop in My Drink*, helps older students learn about the process of the water cycle in more detail. Through both books, children can use their growing knowledge of evaporation, condensation, and precipitation to predict where water they observe one day will be the next.

For Grades K–3: Tracking a Snowball

Young students make wonderful observations and ask wonderful questions about nature. The following activities allow students to observe and describe different parts of the water cycle and to predict what will happen to water over time. Before reading *The Snowy Day* ask students, “What do you like to do on snowy days?” “Did you ever build a snowman?” “Is your snowman still there?” Tell students that the story about Peter’s day in the snow has a mystery in it that they need to help solve. As you read the story, ask questions, comparing the student’s experiences in the snow to Peter’s experiences.

When you finish reading, have students help make a large circular chart tracing the mysterious path taken by Peter’s snowball. Tell them this path has another name—*the water cycle*. Asking questions—like a detective would—provides students with the opportunity to develop the story of where Peter’s snowball came from, where it is going, how it has not truly disappeared, and how it will reappear again. This is a good time to introduce the idea that water is not always a liquid and can also



be a solid or gas and to introduce terms such as *evaporation*, *condensation*, and *precipitation*.

Now it is time for students to make their own “detective notebook” and search for “clues.” Find a location on the schoolgrounds where signs of water are evident. This might be an area where there is or was a puddle, a dewy spot in the grass, a snow bank, condensation or frost on a flagpole, or visible clouds overhead. Some astute students might even remark that their own breathing adds water into the water cycle.

Challenge your students to list as many signs of the water cycle as they can in this location. They can record each clue as a drawing, words, or both. Back in the classroom, have students categorize their clues as examples of water as a solid, liquid, or gas, or as examples of the evaporation, condensation, and precipitation processes. The teacher should point out that many of the students’ clues fit into more than one category.

Extensions for this activity include repeating the activity on a later date and comparing the results for the two days. The teacher can ask, “Why are they different? Where did the water go?” Teachers might also want to put a snowball—or an ice cube if snow is not available—in their own jacket pocket and hang it in the classroom. Students can feel the pocket over several days and determine what is happening to the water.

For Grades 4–6: Terrariums to Puddles

The fascinating narrative and vivid illustrations of *The Drop in My Drink* inspire appreciation for the water we drink. Read the first page of *The Drop in My Drink* to students: “Water trickles and seeps and flows. It freezes into hard ice. It floats in the air. It is

liquid and solid and vapor. It is never still.” Ask them to interpret those sentences and ask, “Where can we find water?” After listening to some answers, have students look around the classroom and out windows, brainstorming all the different objects they see that contain water or through which water passes.

Next, serve each student a cup of water in a clear plastic cup. Students should not destroy or throw away the cup, as they will use it later in the activity. Ask students, “What is the difference between the water in this cup and the water you observe around you?” Once the stage has been set, it is time to read the story.

After reading the story, have students set up their own water-cycle terrariums using the plastic cups, soil, reliably germinating seeds, and enough water to wet, but not over soak, the soil. Cover the terrariums with plastic wrap, seal them with rubber bands, and place them in the window. Over time, students should see condensation forming on the bottom of the plastic wrap lid. A more detailed explanation of how to set up a terrarium is available at the EPA website (see Resources).

This condensation is analogous to clouds. Driven by the heat from the Sun, the water in a closed system should recycle and sustain the seed within. Students can discuss what is happening as water in the terrarium begins to condense and return to the “ground.” After observing the water in the closed system for a period of time, students can revisit the larger question posed before the reading of the story, “What is the difference between the water in the terrarium and the water in your glass?”

A second water cycle activity offers older students an opportunity for data collection. Have students find a puddle on schoolgrounds. If there are no puddles, have students create one in a pie plate. Ask students to record the dimensions of the puddle on a daily basis for several days in a chart. Appropriate dimensions might be circumference, radius, and depth. These dimensions can then be graphed on a line graph by date and then compared to the weather for each day. If the puddle grows, a discussion of precipitation is in order. If the puddle evaporates more on one day than another, perhaps weather conditions were drier or sunnier. Surrounding the puddle with traffic cones



and string will keep the puddle from being disturbed. Sidewalk chalk can also be used to trace around the puddle and to compare sizes from day to day.

Remind students that anytime one collects data in a natural setting, there are many unpredictable factors that can affect the outcome of the data. Discuss with your students at the conclusion of the experiment how the experimental design could be improved if the experiment were to be repeated.

Observing and documenting daily changes in something as ordinary and mundane as a puddle on the playground can be a fun and stimulating activity for elementary students. Students just might be inspired to repeat these experiments at their home or come up with their own new observations and conclusions about the water cycle. These activities provide the students a springboard for diving deeper into investigations relating to this daily phenomenon.

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Internet Resources

U.S. Geological Survey: Water Science Topics List
ga.water.usgs.gov/edu/helptopics.html

U.S. Environmental Protection Agency:
Classroom Activities and Experiments
www.epa.gov/OGWDW/kids/exper.html