

4: Water Cycling in the Wilderness

Based on the Alaska quarter reverse



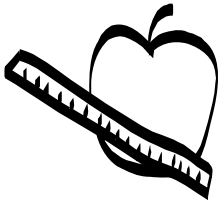
OBJECTIVE

Students will identify stages in the water cycle. Students will identify the importance of water to all living things.



MATERIALS

- 1 overhead projector (optional)
- 1 overhead transparency (or photocopy) of each of the following:
 - “Alaska Quarter Reverse” page
 - “Round and Round It Goes” worksheet
- “Alaska Quarter Reverse” page
- “Round and Round It Goes” worksheet
- “The Water Cycle” songsheet
- 1 class map of the United States
- 1 copy of a text that gives information about the water cycle. For example:
 - *The Drop Goes Plop: A First Look at the Water Cycle* by Sam Godwin
 - *The Water Cycle (Nature’s Changes)* by Bobbie Kalman and Rebecca Sjonger
 - *The Life and Times of a Drop of Water: The Water Cycle* by Angela Royston
 - *The Snowflake: A Water Cycle Story* by Neil Waldman
- 1 copy of a text that gives information about Alaska. For example:
 - *Count Alaska’s Colors* by Shelley Gill
 - *Far North In the Arctic: Counting Alaska’s Animals* by Corey Hansen and Kathryn Kunz Finney
 - *Alaska’s 12 Days of Summer* by Pat Chamberlain-Calaman
 - *Alaska ABC Book* by Charlene Kreeger
 - *Under Alaska’s Midnight Sun* by Deb Vanasse
- Chart paper
- Markers
- Small clear plastic cups
- Hot water
- Tape
- Bag of ice cubes
- Cotton Balls
- Small paper cups



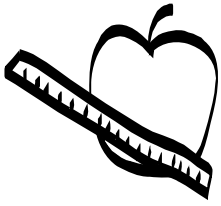
Water Cycling in the Wilderness

- Cold water
- Construction paper (11 by 17 inches)
- Sequins
- Scissors
- Glue
- Butcher drawing paper
- Pencils
- Crayons



PREPARATIONS

- Make an overhead transparency (or photocopy) of each of the following:
 - “Alaska Quarter Reverse” page
 - “Round and Round It Goes” worksheet
 - “The Water Cycle” songsheet
- Make copies of each of the following:
 - “Alaska Quarter Reverse” page (1 per student) (optional)
 - “Round and Round It Goes” worksheet (1 per student)
 - “The Water Cycle” songsheet (1 per student)
- Locate a text that gives information about the water cycle (see examples under “Materials”).
- Locate a text that gives information about Alaska (see examples under “Materials”).
- Gather for observation in Session 2:
 - 2 small clear plastic cups
 - Tape
 - Hot water
 - Bag of ice cubes
 - Cotton balls (1 per student)
 - Small paper cup (1 per student)
 - Cold water (place a small amount in each cup)
- Cut large circles from constructions paper (1 per student).
- Gather sequins and cotton balls for illustration of the water cycle in Session 2.
- Cut a piece of butcher paper for a class mural.



Water Cycling in the Wilderness



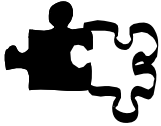
GROUPINGS

- Whole group
- Small groups
- Individual work



CLASS TIME

Four 20- to 30-minute sessions



CONNECTIONS

- Science
- Language Arts
- Art



TERMS AND CONCEPTS

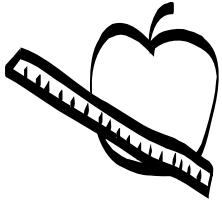
- Quarter
- Obverse (front)
- Reverse (back)
- Water cycle
- Condensation
- Evaporation
- Precipitation
- Glacier
- Waterfall
- Solid
- Liquid
- Gas



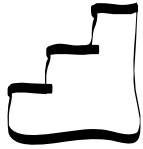
BACKGROUND KNOWLEDGE

Students should have a basic knowledge of:

- Water
- Needs of living things
- Weather
- Cycles
- Mural



Water Cycling in the Wilderness



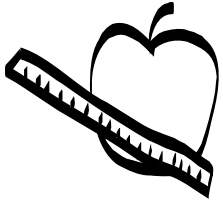
STEPS

Session 1

1. Review the term “cycle” with the students. Discuss the cycles that they are already familiar with (for example: recycle, life cycle, the seasons).
2. Ask the students to give ideas of the forms that water takes and record their responses on chart paper.
3. Introduce the term “water cycle” to the students. Tell the students that the water cycle is the process by which water changes forms over and over again. Write the definitions at the top of a piece of chart paper.
4. Introduce the students to the selected text on the water cycle. Preview the text and illustrations and allow students to generate observations about the water cycle.
5. Read the text aloud. During the reading, attend to any unfamiliar vocabulary.
6. After the reading, discuss the water cycle again and the forms they noticed in the text. Add the responses to the chart paper.
7. Discuss the stages of the water cycle: evaporation, condensation, and precipitation. Explain each. (In evaporation, the sun heats the water and turns it into vapor or steam—tiny droplets that can’t always be seen. In condensation, the vapor in the air gets cold and turns back into liquid. In precipitation, so much water has condensed on particles in the air that the air can’t hold them anymore.)
8. On another piece of chart paper, label three columns with the terms evaporation, condensation, and precipitation.
9. Discuss which form of water is created by each of these processes.
10. Display the overhead transparency of the “The Water Cycle” songsheet. Introduce students to the song and act out the lyrics a few times. Then distribute a copy of the “The Water Cycle” songsheet to each student so they can practice the song and motions at home.

Session 2

1. Sing the “The Water Cycle” as a review of the previous session.
2. Show the students the two clear plastic cups of water, one empty and one filled with hot water. Tape them together, the empty one upside down on top of the other.
3. As the upper cup starts to fog, ask the students which stage of the water cycle is occurring (evaporation).
4. Next put a bag of ice cubes on the top of the upper cup and explain that it is very cold up high in the air. As beads of water form, ask the students which stage of the water cycle they are observing now (condensation).

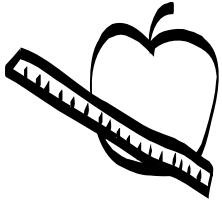


Water Cycling in the Wilderness

5. Once the droplets begin to fall from the top cup, ask the students which stage is taking place (precipitation).
6. Explain to the students that they will be doing a short observation to show them the stages of the water cycle. Show the students the materials they will be using. Remind the students that the materials are for an observation and should be used appropriately (for example: don't drink the water, don't put cotton balls in their ears).
7. Distribute a cotton ball and a small paper cup with a little water in it to each student.
8. Direct the students to hold the cotton ball and pretend they are holding a cloud. Explain that the water has evaporated and formed the cloud because it is so much colder high up in the sky (evaporation). Ask the students if it feels heavy or light.
9. Tell the students to place the "cloud" (cotton ball) in the cold water until it's wet, then hold it over the cup. Ask the students how the "cloud" feels now, heavy or light.
10. Ask the students what is happening to the water. Encourage them to say it is dripping from the cotton ball. Explain to the students that at this stage the clouds get very heavy with water and cannot hold anymore so water falls from the clouds in the form of rain or, if it is really cold, snow (precipitation).
11. Collect the materials.
12. Display the transparency of the "Round and Round it Goes" worksheet and distribute a copy to each student.
13. Explain to the students that they are going to illustrate the water cycle on a coin made of construction paper. They will use cotton balls, crayons, and sequins to make the illustration. Ask the students what they think each of the materials will represent (cotton balls are clouds, sequins are rain, small pieces of cotton could be snow, etc.).
14. Direct the students to cut out the terms from the "Round and Round it Goes" worksheet and glue them next to the appropriate illustration on their water cycle coin. Remind the students to include the Sun in their illustration since it plays a role in the water cycle. Allow them time to complete the coin illustration.
15. Review the students' coins as a class and display them.

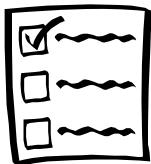
Sessions 3 and 4

1. Review the previous sessions and discussions on the water cycle.
2. Discuss how each of the stages of the water cycle are important to all living things.



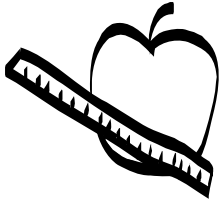
Water Cycling in the Wilderness

3. Describe the 50 State Quarters® Program for background information, if necessary, using the example of your own state, if available. Then display the transparency or photocopy of the Alaska quarter reverse, mentioning that an image must be special to be on a quarter. Locate Alaska on a classroom map. Note its position in relation to your school's location.
4. With the students, examine the design on the Alaska quarter. Tell the students that the back of a coin is also called the reverse, and "obverse" is another name for the front of a coin. Look at the images on the coin. Discuss that the design shows a bear clutching a salmon in its mouth and a waterfall behind them. Show the students the date at the top of the coin and tell them that is the date Alaska became part of the United States. Explain that "The Great Land" is a nickname for Alaska.
5. Introduce the students to the selected text on Alaska. Preview the text and illustrations and allow students to generate observations about the Alaska.
6. Read the text. During the reading, attend to any unfamiliar vocabulary.
7. After the reading, discuss Alaska and living things that can be found in Alaska. Record the responses on a piece of chart paper.
8. Explain to the students that Alaska has a lot of water. Ask the students what forms of water might be seen in Alaska (for example: waterfalls, lakes, rivers, the ocean, snow, ice). Tell the students that the word "Alaska" means "the mainland" or "the object towards which the action of the sea is directed." Discuss the importance of water in Alaska based on the images on the coin (for example: it is a home for fish, the bear needs it to drink, the trees need it to grow).
9. Divide the class into small groups. Explain to the students that as a class they will create a mural of the water cycle. Each group will be responsible for illustrating something from the chart paper on Alaska. Tell the students the mural needs to include waterfalls, glaciers, ice, snow, and plants and animals seen in Alaska. Half of the class will illustrate the stages of the water cycle and the forms of water seen in Alaska and the other half will illustrate the living things found in Alaska. All must label their drawings appropriately.
10. Allow an appropriate amount of time for the students to complete the mural.
11. As a class, review the mural and the stages of the water cycle.



ASSESSMENT

- Take anecdotal notes about the students' participation in class discussions.
- Evaluate the students' worksheets and mural for understanding of the lesson objectives.



Water Cycling in the Wilderness



ENRICHMENTS/EXTENSIONS

- Have students relate the water cycle to their own state and the various living things found there.
- Have students research other states that are made up primarily of water. Have them report on the various living things found in those places and why the water is important to them.



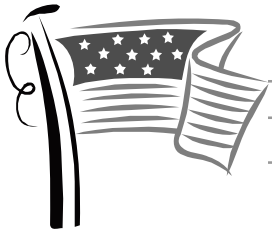
DIFFERENTIATED LEARNING OPTIONS

- Allow students to work in pairs.
- Provide students with a completed copy of the “Round and Round It Goes” worksheet.
- Allow students to use clip art on the mural.



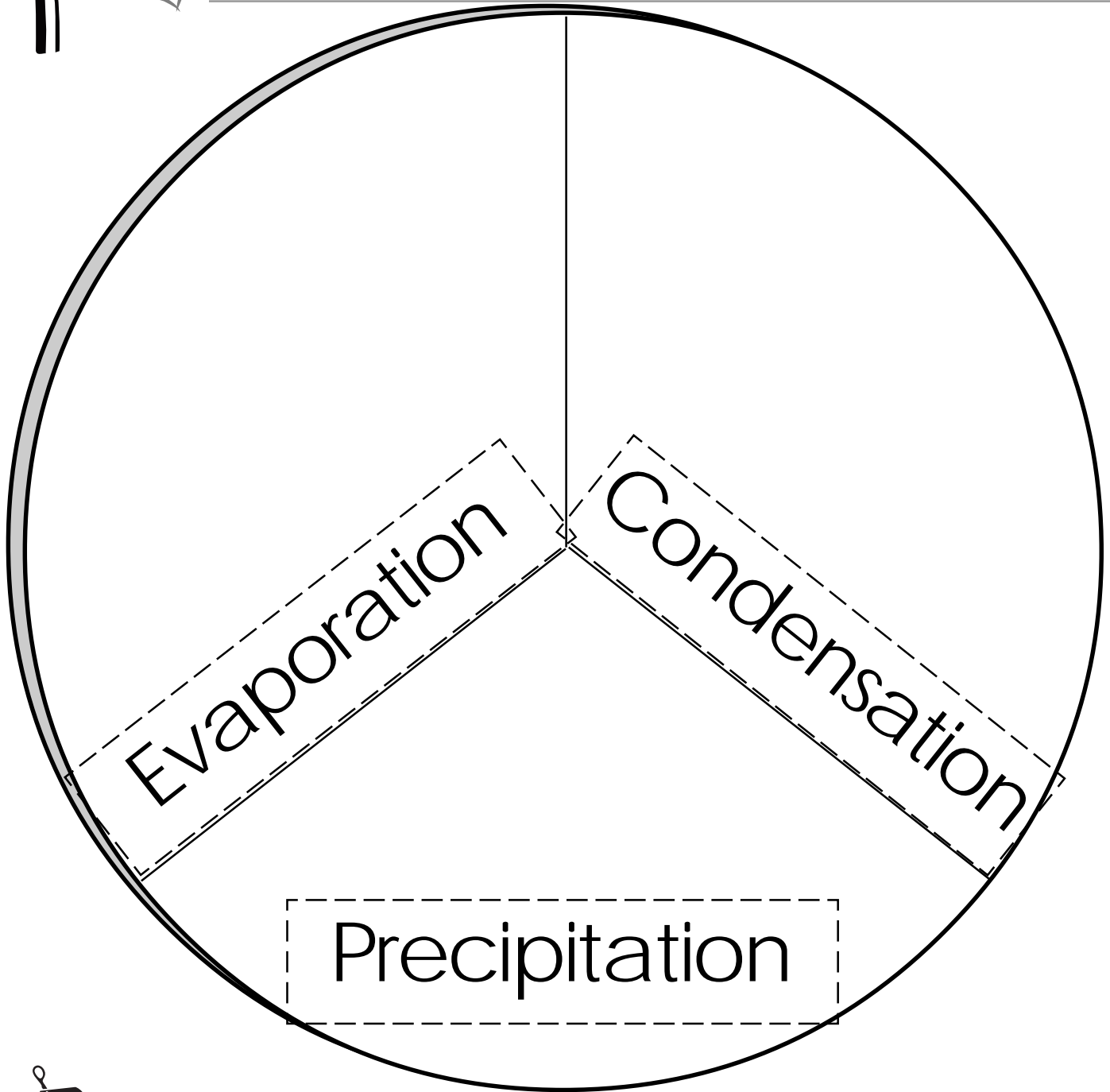
CONNECTION TO WWW.USMINT.GOV/KIDS

Have students learn more about water by using the Washington quarter lesson plan at www.usmint.gov/kids/teachers/lessonPlans/50sq/2007/_k01-2.pdf.



Name _____

Round and Round It Goes



Evaporation

Directions: Draw the three stages of the water cycle on the coin. Trace the words in the boxes. Cut out the boxes and glue them onto your coin as indicated.

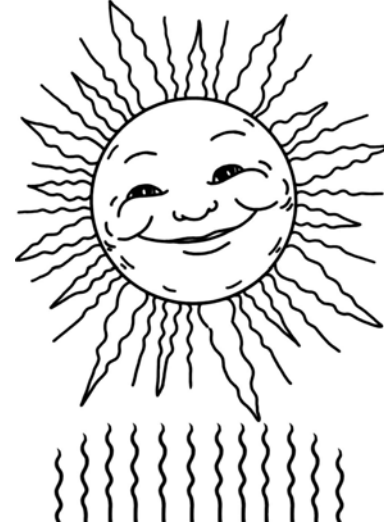
Condensation Precipitation



The Water Cycle

(Sung to the tune of "Clementine")

The water cycle, the water cycle,
The water cycle goes around:
(Make a large circle with one arm)



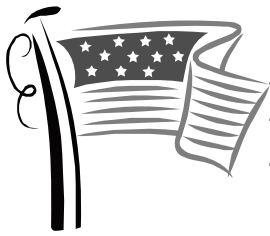
Evaporation,
(Raise hands, palms up)

Condensation,
(Bring hands together overhead)



Precipitation falling down.
(Lower hands slowly, palms down,
wiggling fingers)





Alaska Quarter Reverse

