



# The Book Planter



**Ag in the Classroom**

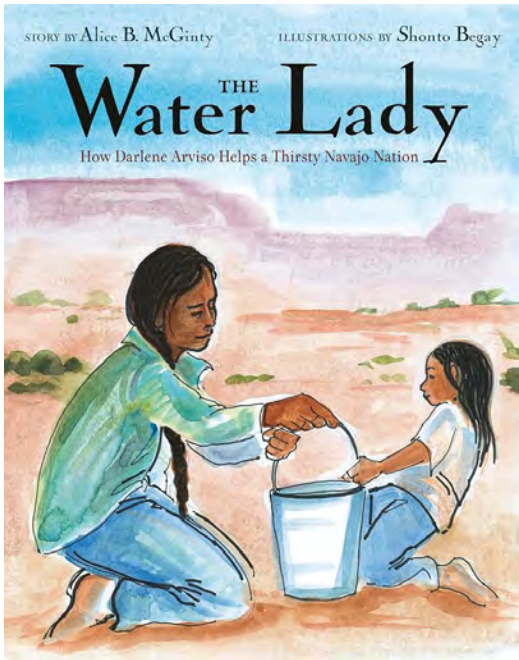
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## ***The Water Lady: How Darlene Arviso Helps a Thirsty Navajo Nation***

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Underneath the New Mexico sky, a Navajo boy named Cody finds that his family's barrels of water are empty. He checks the chicken coop—nothing. He walks down the road to the horses' watering hole—dry. Meanwhile, a few miles away, Darlene Arviso drives a school bus and picks up students for school. After dropping them off, she heads to another job: she drives her big yellow tanker truck to the water tower, fills it with three thousand gallons of water, and returns to the reservation,

bringing water to Cody's family, and many, many, others. Here is the incredible and inspiring true story of a Native American woman who continuously gives back to her community and celebrates her people.

### **Discussion Questions<sup>2</sup>**

1. What do you learn about Cody's life and the world around him from the pictures in the book?
  - a. Make a list of details about his home, his family, the countryside around him, the animals in his life, and so on.
  - b. What can you tell about Cody's relationship with his grandmother? How is her story conveyed in the illustrations?
2. Search for photographs of the Navajo Nation on the internet (with adult supervision). How do different aspects of Cody's life on the Navajo Nation compare to yours? Think about family, home, school, and transportation. Identify which parts are similar and which are different.
3. If you could visit Cody, what would you talk to him about?
4. What would you like to do on the Navajo reservation?

### **Making a Difference**

Attached is a worksheet for students to recall a helpful person from their community.

## Student Motivator – Engage<sup>1</sup>

1. Place one cup of water into a clear bowl. Place a piece of masking tape on the outside of the bowl at the top of the water line. Set the bowl on a sunny windowsill. Check the bowl every half-hour to see what happens. The sun will warm the water and cause the water to evaporate. This means that the water will turn liquid into gas (water vapor). The amount of water in the bowl will decrease when the liquid turns into water vapor. (Remind students that we cannot see water vapor.)
2. After you place the bowl of water on the window sill, fill a clear glass three-fourths full with ice. Set the glass of ice where most students can watch it. Check the glass every 15 to 20 minutes to see what happens. Explain to your students that ice is the solid state of water. Ice will melt because the classroom is not at a cold enough temperature to keep the ice frozen. The melting ice demonstrates the change of a solid to a liquid.
3. Clarify for students that water exists in different forms. Water can exist as a liquid (water), solid (ice), or gas (water vapor) and can change from one to another.
4. Show your students the [Water in Agriculture](#) pictures.
  - You can print them or project them on a screen.
5. As you display the pictures, ask students to identify what they see in common in the pictures.
  - Students should recognize that water is in each picture. They should also recognize that each picture shows a plant or animal that is produced to provide our food.
6. Begin a basic conversation with your students about the importance of water. Likely, they already know that we need water in our bodies to live and be healthy. Help them extend their knowledge and begin to understand that without water, farmers could not provide food. Follow up with the following questions.
  - Why do you think water is important to farmers?
  - Have you ever heard the phrase “we are in a drought?” What does that mean?
  - Is too much water bad?
  - Is too little water bad?

## Activity 1: Water Cycle<sup>1</sup>

Explain to the students that water changes from one form into another naturally in the environment.

### Materials

- Water Cycle in a Cup:
  - [Water Cycle Diagram](#)
  - Plastic cup, 1 per pair of students
  - Plastic wrap
  - Water
  - Tape
  - Crayons or permanent marker
  - [Landform Cutout](#), 1 per pair of students

- Water Cycle Demonstration:
  - Large, clear plastic bowl
  - Small container (like a butter tub)
  - Water
  - Clear plastic wrap
  - Large rubber band
  - Small weight (like a rock with a diameter the size of a quarter)

## **Procedures**

### **1. Water Cycle in a Cup**

- a. Organize students into groups of two and explain the directions for Water Cycle in a Cup activity. Review key vocabulary that are labeled on [the Water Cycle Diagram](#) and make sure students understand their meaning.
- b. Color the [Landform Cutout](#).
- c. Tape the landform drawing to the back of the cup.
- d. Add 60 mL (1/4 cup) of water to the earth cup and cover with plastic to keep the water from evaporating.
- e. Use a crayon or permanent marker to mark the starting water level with the current time.
- f. Place the cup outside in the sun for ½ hour.
- g. Observe and discuss the changes.

### **2. Water Cycle Demonstration**

- a. Take a clear, large plastic bowl and place the smaller container (butter tub) in the middle of the large bowl. Pour water into the large bowl, around the small container, but not inside the small container. Fill the large bowl until the water level reaches to about  $\frac{3}{4}$  of the height of the small container.
- b. Place a piece of clear plastic wrap over the large bowl. Put the rubber band around the top of the bowl to keep the plastic wrap in place. Take the weight (rock) and put it in the middle of the plastic wrap. Place the “water cycle” inside the classroom in a sunny spot (like a windowsill).
- c. The sun will heat the water in the large bowl so the water will evaporate, just like the water did in the other activity. Here, the liquid form of water has changed into gas. The evaporated water (gas) will rise and condense on the plastic wrap. This means that the water vapor has turned back into liquid. The water droplets will slide down the plastic wrap until they are underneath the weight (rock). Then they will fall into the small container. The small container collects the water that has been “recycled.”

## **Activity 2: The Earth’s Water Supply**

### **Materials**

- Water

- 1-gallon container (such as a plastic ice cream bucket)
- 1/2-cup measuring cup
- Clear bowl
- Eye dropper
- Small plate

## EARTH'S WATER SUPPLY

Oceans 97.3%

Ice 2.19%

Groundwater 0.5%

Soil Moisture 0.005%

Atmosphere 0.001%

Inland Lakes 0.018%

Rivers 0.000096%

### Procedures

1. Discuss the Earth's water supply using the information from the introduction.
2. Display the following information on a poster or the board.
3. To demonstrate how much of Earth's water supply is actually used, ask some students to help you with the next steps. (Make sure that the students understand this is just a demonstration and there is actually more water than this on earth.)
4. Pour water into a one-gallon container, such as a plastic ice cream bucket. This represents all the water on earth.
5. Pour a half-cup of water out of the one-gallon container and into a clear bowl. The water in the bowl represents all of the fresh water on earth, which is less than three percent of the total water on earth. Fresh water is found in lakes, rivers, groundwater, ice, and living things. The 15 half-cups that are still in the one-gallon container represent salt water. We cannot use salt water without first removing the salt in a process known as desalination. Though research and technology are improving this process, it is still prohibitively expensive and often impractical.
6. With an eyedropper, drop one drop of water from the half-cup onto a small plate. This one drop represents the freshwater that is available for our use. This water is found in rivers and lakes. The rest of the water in the half-cup is deep groundwater, water bound up as soil moisture, biomass water, or water in the atmosphere.

### Sources

1. <https://newyork.agclassroom.org/matrix/lessons/225/>
2. [www://efaidnbmnnnibpcajpcgiclfindmkaj/https://static1.squarespace.com/static/53e53538e4b09aec91745833/t/607f546b0a66c16e6a9edebd/1618957438341/waterladyteachingguide.pdf](http://www.efaidnbmnnnibpcajpcgiclfindmkaj/https://static1.squarespace.com/static/53e53538e4b09aec91745833/t/607f546b0a66c16e6a9edebd/1618957438341/waterladyteachingguide.pdf)
- 3.

K-5 Subject Areas: English Language Arts, Science

### English Language Arts

- RL.K.1 With guidance and support, identify a detail in a familiar text.
- RL.K.2 With guidance and support, identify the main topic of a familiar text.
- RL.1.1 Identify details in a familiar text.
- RL.1.2 Identify the main topic and retell key details of a text.
- W.1.2 Write informative/explanatory texts in which they name a topic, supply some facts about the topic and provide closure
- W.1.5 Participate in shared research and writing projects.
- W.1.6 With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.
- RL.2.2 Identify the main topic of text.

- RL.2.4 Identify words that relate to the topic of a text.
- W.2.2 Write informative /explanatory texts in which they introduce a topic, use facts and definitions to develop points, and provide a concluding statement or section.
- W.2.5 Participate in shared research and writing projects.
- W.2.6 Recall information from experience or gather information from provided sources to answer a question.
- RL.3.2 Identify the main topic and retell key details of a text.
- RL.3.4 Identify key words that complete sentences in a text.
- RL.3.5 Locate key facts or information in a familiar text.
- W.3.2 Write informative /explanatory texts to examine a topic and convey ideas and information clearly.
- W.3.5 Conduct short research projects that build knowledge about a topic.
- RL.4.1 Identify explicit details in an informational text.
- RL.4.4 Determine the meaning of words in a text.
- W.4.2 Write informative /explanatory texts to examine a topic and convey ideas and information clearly.
- W.5.2 Write informative /explanatory texts to examine a topic and convey ideas and information clearly.
- RL.5.1 Identify words in the text to answer a question about explicit information.

## Science

- PS.K.2 Understand how the positions and motions of objects and organisms observed in the environment.
- LS.K.1 Understand the characteristics of living organisms and nonliving things.
- ESS.1.2 Understand the physical properties of Earth materials.
- ESS.1.3 Understand that natural resources are important to humans.
- PS.2.1 Understand properties of solids and liquids and the changes they undergo.

Name \_\_\_\_\_

# Making a Difference

Darlene, the Water Lady, provides important help to others in her community. Do you know, or have you heard about, anyone else who helps their community? It could be a friend, family member, or community member. Answer the questions below, and share your Helpful Person Profile with your class.

The person's name: \_\_\_\_\_

How you know about the person: \_\_\_\_\_

\_\_\_\_\_

Where the person lives or lived: \_\_\_\_\_

\_\_\_\_\_

What the person has done: \_\_\_\_\_

\_\_\_\_\_

Who the person's actions have helped: \_\_\_\_\_

\_\_\_\_\_

How the person's actions have helped the community: \_\_\_\_\_

\_\_\_\_\_

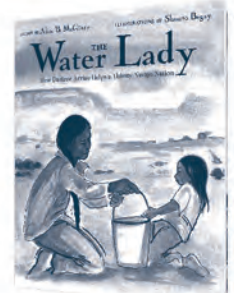
Why you admire the person: \_\_\_\_\_

\_\_\_\_\_



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Cranberry Harvest



Soybean Field



Onion Field



Corn Field



Rice Field



Cattle



Chicken

# Landform Background Strips

MAX CANTO '91

