

GROW YOUR PALS PROGRAM GUIDE



THE NATIONAL FFA MENTORING PROGRAM

Sponsored by



LESSON 3.5

The Water Cycle

Unit:
FOOD AND NUTRITION

PRECEPTS

- E. Awareness
 - E1. Address issues important to the community



Lesson Type:
Small Group

NATIONAL STANDARDS

- ESS.03.02.03.a. Explain how the physical qualities of the soil influence the infiltration and percolation of water.
- ESS.03.03.01.a. Describe the world's water supplies and discuss the many uses of water.
- NL-ENG.K-12.12 – Applying Language Skills
- NS.K-4.1 – Science as Inquiry
- NS.K-4.4 – Earth and Space Science

STUDENT LEARNING OBJECTIVES

As a result of this lesson, the student will ...

- Create a model of the water cycle.
- Explain how a *reservoir* works.





TIME

Instruction time for this lesson: **30 minutes.**



RESOURCES

Reservoir. (n.d.) In Ask.com, [www.dictionary.com](http://www.dictionary.reference.com/browse/reservoir) retrieved from <http://dictionary.reference.com/browse/reservoir>.



TOOLS, EQUIPMENT AND SUPPLIES

- ✓ Glass of water
- ✓ Plastic box
- ✓ Spray bottle
- ✓ Pebbles
- ✓ Sand
- ✓ Soil
- ✓ Leaves
- ✓ Large, clear glass or plastic jar for each PALS' model water cycle
- ✓ Several small plants for each PALS' model water cycle
- ✓ Bottle cap, shell or other small container of water for each PALS' model water cycle
- ✓ Soil for each PALS' model water cycle
- ✓ Sand for each PALS' model water cycle
- ✓ Pebbles for each PALS' model water cycle
- ✓ PALS3.5.SG.AS.A- one per student
- ✓ PALS3.5.SG.AS.B- one per student
- ✓ PALS3.5.ASSESS.A- one per student
- ✓ Local map depicting the location of reservoirs in the area

KEY TERMS



The following term is presented in this lesson and appears in ***bold italics***:

Reservoir



CONTENT OUTLINE

Objective 1. | Create a model of the water cycle.

- A. How water works
- B. Build your own water cycle activity

Objective 2. | Explain how a *reservoir* works.

- A. **Reservoir** – a natural or artificial place where water is collected and stored for use

INTEREST APPROACH

Place a glass of water in front of your PALS. Begin a discussion about where this water comes from.



What do we have here?

A glass of water.



Where did this water come from?

Responses may vary from the following: the sink, the ground, etc. Continue the discussion using the following questions: Is this the same water we feel when it's raining? Is this the same water we swim in? Is this the same water fish live in? Continue to ask these questions, leading students to understand that water never stops moving, water continues in a cycle, and water does not always naturally exist in its pure form.



Is this the same water we swim in? Is this the same water we feel when it's raining?
Is this the same water fish live in? Is this the same water found in the ocean?

After beginning this discussion, introduce students to the objectives of the day.



We have gathered some great ideas so far. Let's take this a step farther and discover the elements of the water cycle and how we are continually supplied with clean drinking water. It is sure to be an exciting venture!

SUMMARY OF CONTENT AND TEACHING STRATEGIES

OBJECTIVE 1. | Create a model of the water cycle.



Use *PALS3.5.SG.AS.A* to help students capture the steps of the water cycle.



Water is one of the most important resources we use. It is important that pure, clean drinking water is readily available to us as we need water for our survival. Let's take a look at something called the water cycle. This cycle will show us how water never stops moving. Capture these steps on your assignment sheet.

Orally announce each step and observe as students capture them on their activity sheet.

1. Snow and rain fall to earth from the clouds.
2. Rain and melted snow run downhill into rivers and lakes.
3. Eventually water flows into the ocean.
4. During evaporation, water turns from liquid into gas.
5. Water moves from oceans and lakes into the atmosphere.
6. Water in the atmosphere forms into clouds.

Continue to repeat steps until all students have their assignment sheet complete.



Let's create our very own water cycle. Follow along and complete the steps as I do.

Gather the following supplies for each student's water cycle: large, clear glass or plastic jar for each PALS' model water cycle; several small plants for each PALS' model water cycle; bottle cap; shell or other small container of water for each PALS' model water cycle; soil for each PALS' model water cycle; sand for each PALS' model water cycle; and pebbles for each PALS' model water cycle. Demonstrate each step and make sure students have their steps completed before proceeding.

1. Place a row of pebbles in the bottom of the plastic or glass jar.
2. Add the sand.
3. Next put in a layer of soil.
4. Plant a few small plants in the jar.
5. Fill the shell or bottle cap with water and place into the jar.
6. Seal with the lid.
7. Place the jar in a sunny place and see how the water cycle works.



In no time, we will be able to see the water cycle work!

Use the *Hieroglyphics e-Moment®* to have students draw pictures representing each step in the water cycle.



To ensure we have the water cycle down, draw a picture on your assignment sheet that represents each step in the water cycle. We will meet back in three minutes to take a look at these symbols.

At the conclusion of three minutes, have students share their pictures/symbols of each step in the water cycle.



Let's check out these pictures. Who would like to share their symbols first?

OBJECTIVE 2. | Explain how a *reservoir* works.



We have just discovered that water moves in a continuous cycle between the air, ground, plants and animals. However, most water does not naturally exist in a pure form, or in a form that is safe for us to drink. Water must be purified before we drink it. Water utilities provide such treatment before water is sent through pipes and into homes in our community. It takes time to purify this water, so it is necessary for water utilities to store extra water in places called **reservoirs**. Please record this definition at the bottom of your assignment sheet: **reservoir** - a natural or artificial place where water is collected and stored for use.

Assist students with recording the definition of **reservoir** on the bottom of PALS3.5.SG. AS.A.



Reservoirs help ensure that communities do not run out of water at any given time regardless of the communities' total water use. Let's construct our own **reservoir**.

Collect the following supplies for the **reservoir** model: plastic box, spray bottle, pebbles, sand, soil and leaves. Follow the steps below and have students assist with each step of the **reservoir** model creation.

1. Line the bottom of the box with small pebbles.
2. Layer sand, soil and leaves on top.
3. Be sure to leave a low spot in the middle of the box.
4. Carefully spray water on the four corners of the model until the soil mixtures is saturated and the water has seeped through to the open area.
5. This open area is the **reservoir**.

As you watch the water slowly seep into the **reservoir**, discuss the following questions and have students record their answers on PALS3.5.SG.AS.B.



What are some of the sources of water for a **reservoir**?

*Students' responses may include: precipitation in the form of rain and snow and other bodies of water that feed into the **reservoir**, such as lakes and rivers.*



How does water get into a **reservoir**?

*Students' responses may include: It seeps over and through the soil above the **reservoir**.*



What contains or holds the water in a real **reservoir**?

Dams.



What kind of natural treatment does water receive in a **reservoir**?

*Natural filtration through leaves, grass and soil; some settling also occurs in the **reservoir**.*



What **reservoirs** are located in our area?

*Get ideas from students and then reference a local map that shows **reservoirs** in the area. Have a discussion about why it is important for community members to be aware of local **reservoirs**, the benefits the **reservoirs** serve to the community, etc. Use the following questions to aid in the discussion.*



Why is it important for us to be aware of our local **reservoirs**? How does our community benefit from these **reservoirs**? What would we do without the **reservoirs**?

*Lead students to the point that **reservoirs** are important to all communities, and it is important for us as community members to be aware of these **reservoirs** and the benefits they give to the community.*



It is important that all community members recognize the need and importance of our local **reservoirs**. As we get older, other community issues will surface. It is our job as active community members to address those issues and share them with other community members. We can take the first step and share with our family and friends the location and importance of our local **reservoirs**. Next, use this experience to continue to educate other community members about important issues facing their home.



REVIEW / SUMMARY

*Number students off into pairs. Use the Go-with-the-Flow e-Moment® to have students review the steps in a water cycle and/or how a **reservoir** works.*



Today we have made ourselves a water cycle and demonstrated how a **reservoir** works. With your partner, take the next four minutes to create a flow chart using only pictures to illustrate steps in the water cycle and how a **reservoir** works. What questions are there?

GO!

After two minutes, allow students to share their charts with another group.

Allow one group to briefly describe their charts.



Thanks for being so attentive today. We learned so much about the water cycle together!

APPLICATION



One-on-One Idea

Have students keep a diary of their water cycle and its daily activities. Be sure to track the growth of their plant, the level of water in the bottle cap, etc.



Large Group Idea

*Take students to visit a water treatment plant or **reservoir**.*

EVALUATION

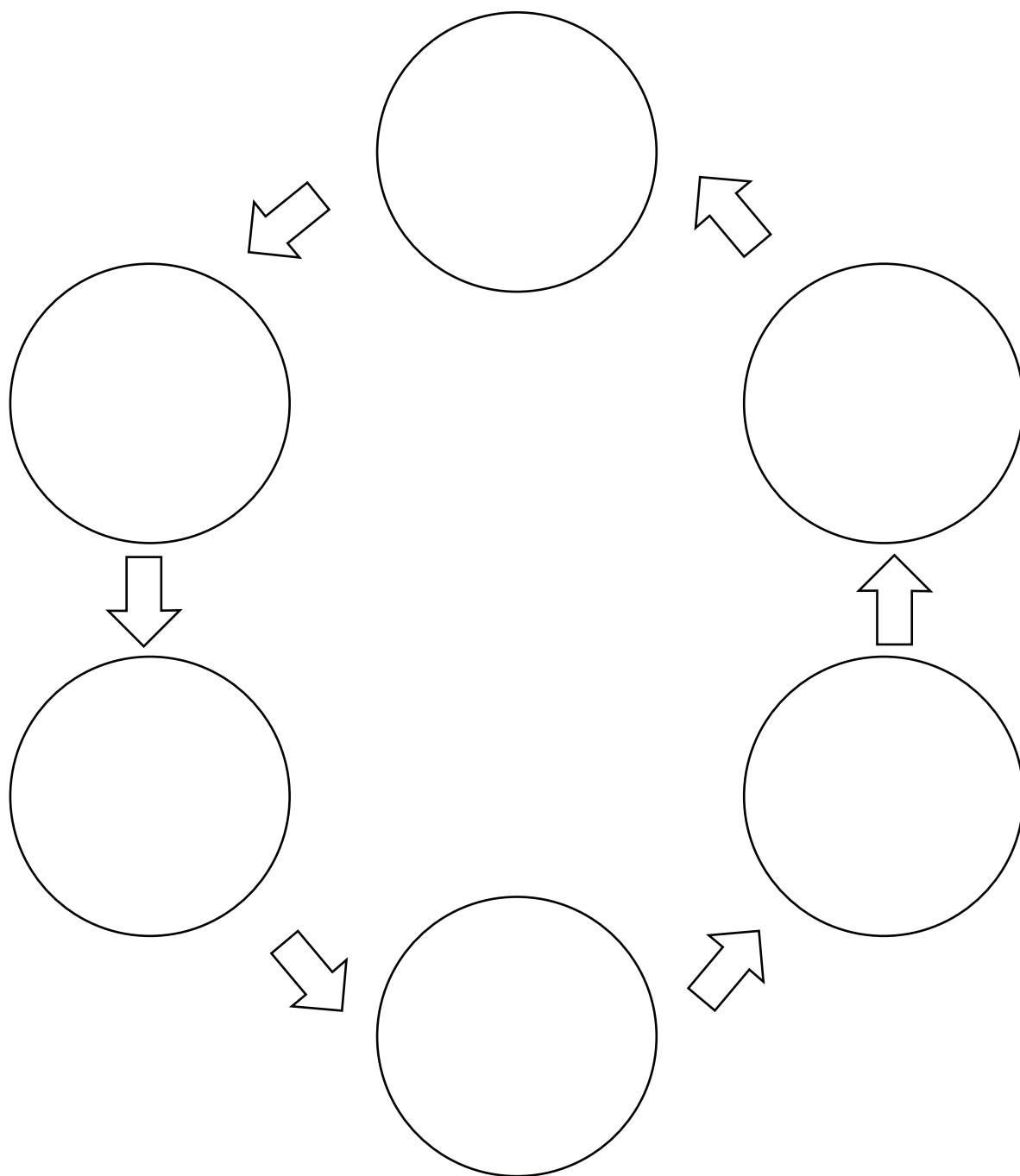
ANSWERS TO EVALUATION:

Complete PALS3.5.SG.ASSESS.A

Pictures will vary but will represent these six steps:

1. Snow and rain fall to earth from the clouds.
2. Rain and melted snow run downhill into rivers and lakes.
3. Eventually water flows into the ocean.
4. During evaporation, water turns from liquid into gas.
5. Water moves from oceans and lakes into the atmosphere.
6. Water in the atmosphere forms into clouds.

THE WATER CYCLE





PALS3.5.SG.AS.B

RESERVOIRS

1. What are some sources of water for a reservoir?
2. How does water get into a reservoir?
3. What contains or holds water in a real reservoir?
4. What kind of natural treatment does water receive in a reservoir?



PALS3.5.SG.ASSESS.A

Name _____

Draw six pictures to represent each step in the water cycle.