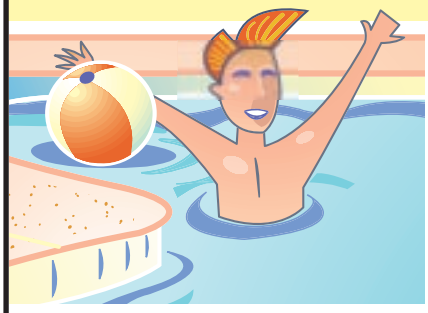
H2O for Kids

A Lower Elementary School Unit of Study, Teacher's Guide

Central Arizona Project



H2O for Kids, A Lower Elementary School Unit of Study

Lesson Plan 1, Kids Can Save Water

Overview

Objectives:
- Recognize that there is a very limited supply of water in the desert.
- Recognize where water in Arizona comes from.
- Recognize the purpose of dams
- Recognize how difficult it is to get water to homes.
- Recognize ways kids can save water.

Procedure:
- Classroom discussion
- Show video
- Start activity book and send it home with students

Interdisciplinary Skills:
- Science and Math

Materials:
- Video
- Activity book
- One 1-cup measuring cup
- Calculation for how many cups to the gallon
- Faucet
- Color Markers
- Paper

Estimated Time:
- 30 minutes

Classroom Discussion

Teacher Says:

Why is saving water important?

Because we live in the desert where water is sometimes hard to get.

How many of you know how to save water? What do some of you do to save water?

These are some ways you can save water at home:
- *Play in sprinklers only with permission to water the lawn.*
- *Turn off the hose when you're done.*
- *Don't splash water out of the pool.*
- *Keep water for drinking in the refrigerator for a cold drink.*
- *Turn water off while you brush your teeth, wash your hands or dishes.*
- *Remind Mom or Dad to fix leaky faucets or toilets*

This video will show us how to save water.

Classroom Activities

Activity One:

Take a 1-cup measuring cup and position it under a classroom sink faucet. Turn the faucet on at a slow drip, much like that of a leaky sink. Time how long it takes to fill one cup (only fill one cup) and help students calculate how long it wold take to fill a gallon. Explain how much water could be wasted, in one day, by a leaky faucet.

Activity Two:

Ask students to draw a picture of them saving water at home.

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Lesson Plan 2, History of Arizona Water

Overview

Objectives:
- Recognize where water comes from
- Recognize that there is a very limited supply of water in the desert.
- Recognize the difference between surface and groundwater.
- Recognize that the Hohokam Indians first developed canals in Arizona and why.
- Recognize how Arizona gets water today.

Procedure:
- Classroom discussion
- Show video
- Start activity book and send it home with students

Interdisciplinary Skills:
- History

Materials:
- Video
- Activity book
- Crayons and paper

Estimated Time:
- 30 minutes

Classroom Discussion

Teacher Says:

Who can tell me where water comes from?

Water is almost everywhere in nature. It's in oceans, lakes, rivers, ice and snow.

Do we have a lot of water in Arizona?

Most of Arizona is a desert where there isn't much rain, so water is harder to get.

This video will show us where our water comes from, who originally gathered water in Arizona and how we get it today.

Classroom Activities

Activity One:

Using crayons and paper, draw a picture of how Arizona gets its water.

Activity Two:

Using crayons and paper, draw the people in Arizona's past who built canals and dams.

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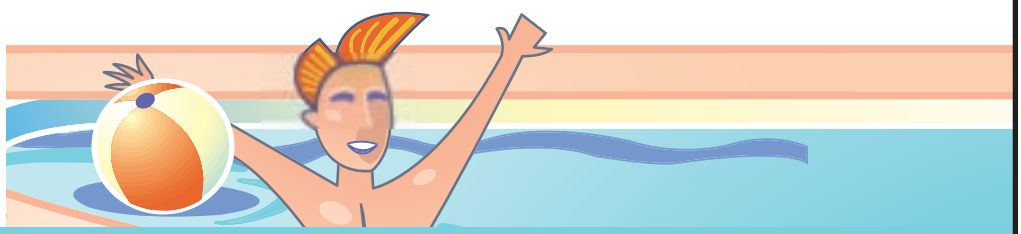


CENTRAL ARIZONA PROJECT
H20 FOR KIDS VIDEO SCRIPT
A Lower Elementary Unit of Study

Water can be found almost everywhere in nature. Most of the earth's surface is oceans and lakes. The north and south poles are covered in ice and snow, which is frozen water. In places called swamps, the land is always wet.

But some places don't have very much water. We live in one of those places.

The water we use begins as rain and snow. Water that runs off into streams, rivers and lakes is known as surface water, because it is found on the surface. Water that soaks into the rocky or sandy soil underground is called groundwater.

Much of Arizona is a desert where there isn't much rain, so water is harder to get. Here, we use both groundwater and surface water. To get groundwater, we must dig wells and pump the water up through pipes. As more people move to Arizona, we need more water, so we have to dig deeper and deeper wells.

We also use surface water, which comes from nearby rivers -- like the Salt River, the Gila River, the Verde River. We also get water form the Colorado River, which is pretty far from Phoenix and Tucson. These rivers begin in the mountains with the rain and snow that falls there.

We can learn a lot from the people who lived in Arizona before us. People called the HoHoKams lived here a very long time ago. They dug canals to bring water from the Salt River to their crops. When White settlers came here over a hundred years ago, the HoHoKam had already been gone a long time. But their canals were still here, so the early settlers used some of the same canals to bring water to their farms and ranches.

Sometimes there wasn't enough rain or snow in the mountains, and the rivers dried up. Other times, there was so much water that the rivers flooded. So the farmers and ranchers got together and built dams. Dams hold rivers back when there is enough rain and snowfall. Lakes behind dams and store water we can use when there isn't enough rain. That's how we can have water all year 'round. In Tucson, the rivers weren't big enough to dam, so people there had to keep digging wells and pumping groundwater.

To bring even more water to our cities, towns, reservations, and farms, the Central Arizona Project Canal was built to carry Colorado River water across the state to central and southern Arizona. This canal took many years of planning and twenty years to build.

The CAP canal is very big, and over 300 miles long. Huge pumps lift the water up 800 feet so that it can flow all the way to Phoenix and Tucson. These pumps need so much electricity that a big generating plant was built.

All surface water, and some groundwater, has to be filtered and cleaned before we can drink it. In some places, filtered and cleaned surface water is mixed with groundwater to make drinking water.

So you see, because we live in the desert, water is very hard to get. But since we can't live without water, we dig deep wells…build huge dams and lakes…long canals…electricity generators…and big water filtration plants…just to make sure we always have water when we turn on the tap.

That's why we shouldn't waste it. There are plenty of ways we can use and enjoy water, while not wasting it. If you remember to use these tips, you will be helping to save water, so there will be enough for everybody.

When it's hot outside, it's fun to play in sprinklers. A good time to do that is when your lawn needs water. That way you can have fun while the grass, trees and flowers get the water they need. But too much water isn't healthy for grass and flowers. Ask an adult how long the lawn should be watered.

You can save water by not letting it fall on driveways and sidewalks. If a sprinkler is missing, or sprays water where it doesn't belong, tell mom or dad about it. And make sure to turn the hose off when you are done.

When you are playing in the pool, try not to splash or spray water on the deck.

You can save a lot of water indoors, too. Ask your mom or dad to fill a pitcher with tap water to keep in the refrigerator. When you want a drink, use that water instead of running the tap. If you can't finish the glass, save it in the refrigerator for later. Don't pour it down the drain.

Don't let water run while you brush your teeth. Leave it off and rinse with water from a glass or cup.

When you wash your hands, put a little water in the sink then turn the water off. Use the water in the sink to rinse.

If you like to take showers, keep them short. Ask your mom or dad to time you: set a five minute limit.

If you like to take baths, don't fill the tub more than a few inches – maybe just above your ankles. That's plenty.

Here are some things you can do if you help with chores:

Don't keep water running while you are washing dishes. Wash the dishes then rinse them in a sink full of clean water.

If you use a dishwasher, just scrape the dishes clean before you put them in, and wait until the dishwasher is full before you run it.

If you help by washing clothes, wait until you have a full load. Ask your mom or dad how to adjust the water level so it's just right.

If you help outside, use a broom to sweep the patio, sidewalk or driveway, instead of spraying with water.

If you help wash the car, do it very early in the morning or late in the afternoon, when the sun is low. And use a spray nozzle that shuts off the water when you are not using it.

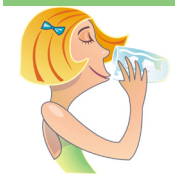
Here's another way you can help save water. If you see a faucet around the house that drips even when you turn it off, or a toilet that keeps running, remind mom or dad to fix them. They can waste a lot of water.

Did you count the tips? Let's review them:

- Play in sprinklers only with permission to water the lawn.
- Tell mom or dad about sprinklers that put water where it isn't wanted.
- Run the sprinklers only enough to keep the grass and flowers healthy.
- Turn off the hose when you're done.
- Keep water from splashing out of the pool when you play.
- Keep water for drinking in the refrigerator.
- If you can't finish a glass of water, save it for later.
- Turn water off while you brush your teeth, wash your hands or dishes.
- When you shower, keep it under five minutes.
- Use less water when you take a bath.
- Scrape dishes clean instead of rinsing them before you put them in the dishwasher.
- Wash clothes only when you have a full load.
- Use a broom to clean the patio or driveway.
- Wash the car when the sun is low.
- Use a spray nozzle that shuts water off when you're not using it.
- Remind mom or dad to fix leaky faucets or toilets.

Water is important to all living things: plants, animals and people. And because we live in a place where water is harder to get, we have to be smarter about how we use it.

If we all try to save water and not waste it, there will be plenty for everybody, for a long time to come.



Central Arizona Project
H20 for Kids

Lesson Plans, Video and Activity Book for Grades K-3
An Analysis of Arizona Academic Standards Met by the Water Curriculum

Some of the Arizona Academic Standards can be met by teaching the activities in the Kids Can Save Water and the History of Arizona Water lesson plans, or by modifying and adapting the activities slightly, while still teaching the intended concept.

Lesson 1 Kids Can Save Water

Mathematics Standards

IM-F7. Select and use appropriate techniques to facilitate computation (e.g., mental, estimation, paper-and-pencil, calculator and computer methods) while solving problems and determining the reasonableness of results.

PO1. Select a computational technique to solve a problem.

PO2. Solve a problem using the appropriate computational techniques.

PO3. Evaluate the reasonableness of results using a variety of mental computation and estimation techniques (e.g., compatible numbers, front end, chunking).

PO4. Use technology (e.g., calculators, computers, multimedia) to solve problems containing larger numbers.

5M-FS1 Use measurement in real-world situations.

PO1. Demonstrate understanding of more and less.

PO2. Match number name to a given quantity (e.g., get 3 apples at the grocery store) as depicted through concrete or pictorial representation.

PO3. Demonstrate ability to use measurement tools (e.g., measure ingredients for cooking using 1 cup measure, teaspoon and tablespoon, measure appropriate amounts of pet food, cleaning solutions, detergent for laundry).

PO4. Use temperature measurement to make decisions (e.g., adjust bath water, determine presence of a fever, select appropriate clothing, and select appropriate stove and or oven temperature, adjust thermostat for comfort and economy).

PO5. Tell time to the hour-half hour using analog digital clocks.

PO6. Use time measurements to make decisions (e.g., set alarm clock and set timer for cooking, use clock to follow a work schedule or determine if early or late for an appointment, estimate quantity of time needed to complete an activity such as getting ready for work, washing hair).

Science Standards

1SC-R5 Perform simple measurements and comparisons

PO1. Perform simple measurements using appropriate devices.

PO2. Compare objects according to their measurements.

Lesson 2 The History of Arizona Water

Social Studies Standards

1SS-F1 Describe how history is the story of events, people, and places in the past, with emphasis on:

PO1. Tracing the history of individuals and families, and describing the way people lived in earlier days and how we live differently today.

PO2. The people and events honored in national holidays, including Thanksgiving, Presidents' Day, and Martin Luther King, Jr. Day.

1SS-F2 Describe everyday life in the past and recognize that some aspects change and others stay the same, with emphasis on:

PO1. Using primary source materials, including photographs, artifacts, interviews, and documents to trace the history of a family from long ago.

PO2. The economies, symbols, customs, and oral traditions of an Indian community in Arizona, including the significance of the Eagle Feather, trade networks, decorative arts, housing, songs and dances.

PO3. How past cultural exchanges influence present-day life, including food, art, shelter, and language.

Science Standards

3SC-F3 Describe and explain the interrelationship of populations, resources and environments

PO1. Describe populations, resources and environments (e.g., habitat, ecosystem, food chain).

PO2. Explain interactions and interdependence among specific populations, resources, and environments.

3SC-F4 Identify and describe how technology contributes to solving problems

PO1. Identify various technologies (e.g., zipper, paper clips, computers).

PO2. Describe how various technologies contribute to solving problems.

4SC-R2 Describe the basic needs of living organisms

PO1. Describe the basic needs of living organisms for survival.

H20 For Kids Activity Book

Activity 1

Write a story that describes the daily life of a HohoKam man in Arizona's past who built canals. Tell what you think the mother and the children did while the father built canals.

Social Studies Standards

1SS-F3 Use stories to describe past events, people, and places, with emphasis on:

PO1. Contributions from past events and cultures.

PO2. Examples of individual action, character, and values.

PO3. Descriptions of daily life in past time and different places, including the various roles of men, women, and children.

Activity 2

Imagine that the students in your classroom are the people living in a town beside a river. Color the picture showing what the people built to store water for a time when it is not raining and snowing enough to provide enough water for the town.

Social Studies Standards

3SS-F2 Identify natural and human characteristics of places and how people interact with and modify their environment, with emphasis on:

PO1. Natural characteristics of places, including land forms, bodies of water, natural resources, and weather.

PO2. Human characteristics of places, including houses, schools, neighborhoods, and communities.

PO3. The relationship between the physical features and the location of human activities.

PO4. How people depend on the physical environment and its natural resources to satisfy their basic needs.

PO5. How people can conserve and replenish certain resources.

PO6. The ways I which people have used and modified resources in the local region, including dame construction, building roads, building cities, and raising crops.

Activity 3

Teacher: In the classroom, have students predict how much water they waste by leaving the water running when they brush their teeth. Ask them to complete the following activity at home.

Student: At home, plug the sink and let the water run while you brush your teeth. When you finish brushing, turn off the water and use a measuring cup to measure how many cups of water are in the sink. You parents can help you calculate and record how much water the entire family would waste each day by leaving the water running while they brush their teeth.

Record the measurements and compare them to your predictions you made in class.

Mathematics Standards

2M-F3 Predict and measure the likelihood of events and recognize that the results of an experiment may not match predicted outcomes.

PO1. Collect and record data from a probability experiment.

PO2. Organize (e.g., sorting, sequencing, tallying) data from a probability experiment

PO3. Name the possible outcomes of the probability experiment.

PO4. Predict the most likely or least likely outcome in probability experiments.

PO5. Compare the outcome of the experiment to the predictions.

5M-F3 Make estimates of measurement.

PO1. Estimate a measurement.

PO2. Compare the estimation to actual measure.

PO3. Evaluate the reasonableness of the estimation.

Science Standards

1SC-R5 Perform simple measurements and comparisons.

PO1. Perform simple measurements using appropriate devices.

PO2. Compare objects according to their measurements.