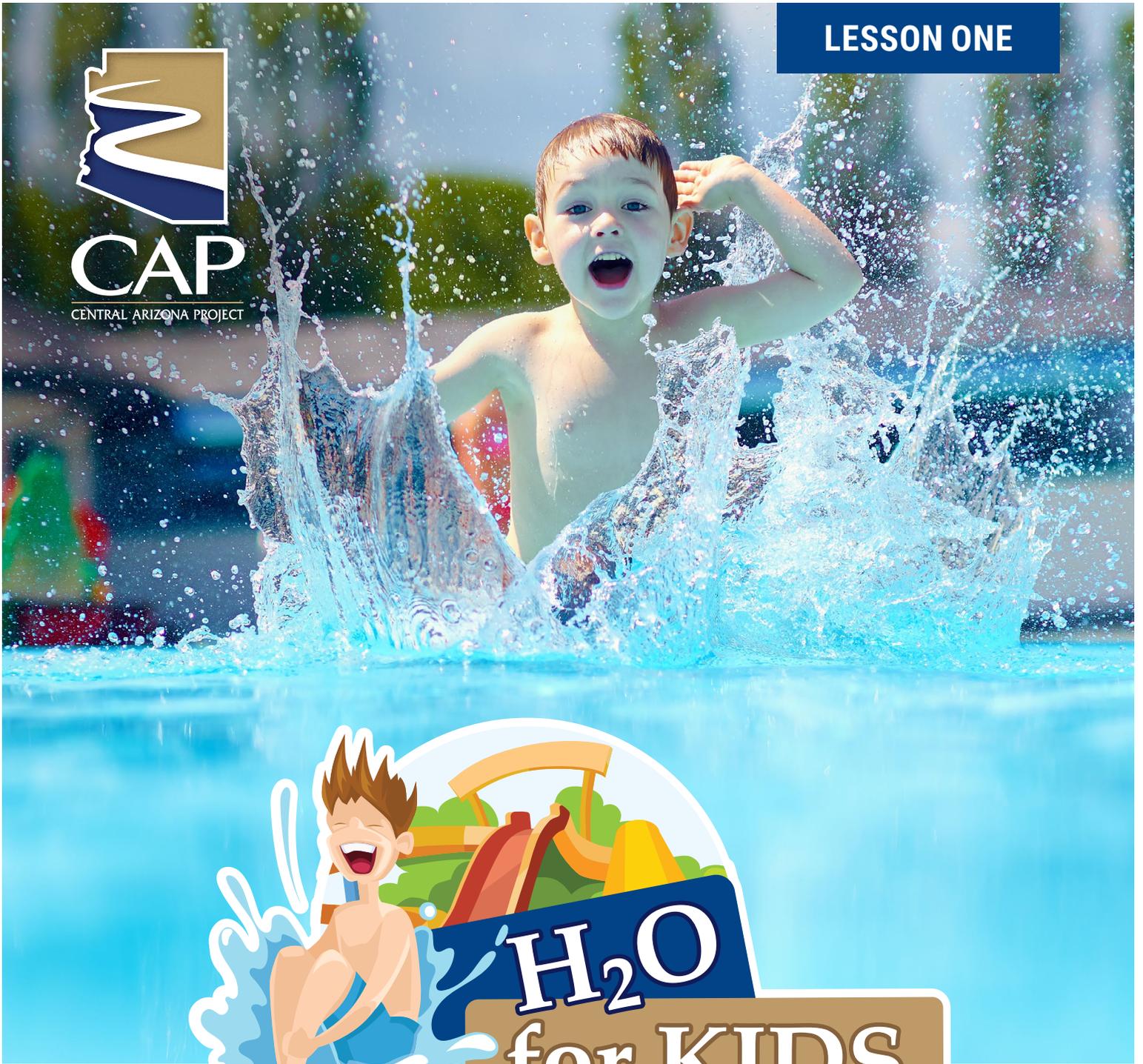


LESSON ONE



CENTRAL ARIZONA PROJECT

K-2 ELEMENTARY SCHOOL UNIT OF STUDY

Teacher's Guide

LESSON 1: WATER CONSERVATION

Lesson 1 – Science
5 E Lesson Plan (K-2)
3d Model – AZ Science Standards

Kindergarten Standards Taught

Science: K.L1U1.6

ELA: K.W.8 / K.W.3 / K.SL.1 / K.SL.2 / K.SL.3 / K.SL.5 / K.E2.1

Social Studies: K.SP3.1 / K.C1.3 / K.C4.1 / K.E2.1 / K.G2.1

Second Grade Standards Taught

Science: 2.E1U1.5 / 2.E1U3.7

ELA: 2.W.8 / 2.SL.1 / 2.SL.2 / 2.SL.3

Social Studies: 2.SP3.3 / 2.G2.1 / 2.G1.2 / 2.G2.3

First Grade Standards Taught

Science: L2U2.7 / E1U1.5

ELA: 1.W.8 / 1.SL.1 / 1.SL.2 / 1.SL.3 / 1.SL.5

Social Studies: 1.SP3.2 / 1.SP3.3 / 1.C1.3 / 1.C3.3 / 1.G1.1 / 1.G2.1 / 1.G3.1

3D Science Crosscutting Concept – Life Science

Essential Question

Why should we try to conserve water?

Supporting Questions

1. What are ways to conserve water in our everyday lives?
2. What would happen if the world ran out of clean water?
3. How can we spread the word about the importance of conserving water?

Objective:

Students will be able to explain the importance of water conservation by collecting data and creating a variety of models and representations.

Materials:

- Poster paper
- Mini sticky notes
- Class journals
- Cause and effect worksheet
- Video access

Anticipatory Set:

What is the most important natural resource in the world?

(Optional) Hide water in a container and tell students that you happen to “own” some of this resource. Keep giving hints until students guess that “water” is the most important resource because it is something that everyone needs to live.

Engage

Why is saving water important, especially for people in Arizona?

1. We live in the desert where water is sometimes hard to get.
2. Water is an important natural resource.
3. There are many ways to conserve water.



CLASS DISCUSSION:

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:

1. Play in sprinklers only with permission to water the lawn.
2. Don't splash water out of the pool.
3. Keep water for drinking in the refrigerator for a cold drink.
4. Turn water off while you brush your teeth, wash your hands or dishes.
5. Remind Mom or Dad to fix leaky faucets or toilets.

Key Terms:

While watching the video, have students remember or jot down examples of natural resources or ways that people conserve water. Create a T-chart of all the examples after the video.

6. Natural Resources: (air, water, land, plants)
7. Conservation: (prevent loss/take care to use less)
8. Video: <http://bit.ly/H2OforKids>

Explore

3D Science Crosscutting Concept: Cause and Effect/Structure and Function

School-wide tour/exploration

Documenting leaks and water usage

Objective:

The students will learn about the importance of water, the many ways it is used, how it can be wasted, and ways to save water through observations and discussions.

Take students on a tour of the school campus. Explain that the class will be looking for ways that the school uses water. Also, look for ways that the school could improve its conservation of water (leaky faucets, etc.) Students can bring a paper and pencil to jot down observations.

- Drinking fountains
- Bathrooms
- School garden
- School cafeteria
- School lawn

Bodies of Water Activity

Students can identify and label various features such as mountains, landforms, dams, and deserts on an Arizona map by using a grid system and map key.

Arizona Bodies of Water

Identify and label various bodies of water such as mountains, landforms, dams, and deserts on the Arizona map by using the grid system and map key symbols below.

- ▲ Mountain
- ▲ Canyon
- ~ River
- ☪ Lake
- ▬ Dam
- ~ CAP Canal
- ★ Capital

- 1 Find the Grand Canyon of A2. Draw the map key symbol for a canyon.
- 2 Find the Mogollon Rim Mountains of B3. Draw the map key symbol for a mountain.
- 3 Find the Colorado River of A2, A3 or C2. Draw the map key symbol for a river.
- 4 Find the Verde River of B3. Draw the map key symbol for a river.
- 5 Find the Salt River of C2. Draw the map key symbol for a river.
- 6 Find Phoenix, Arizona's capital of C3. Put a star by it.
- 7 Find Lake Mead of A1. Draw the map key symbol for a lake.
- 8 Find Lake Pleasant (north of Phoenix) of C2. Draw the map key for a lake.
- 9 Find Hoover Dam of A3. Draw the map key for a dam.
- 10 Find Roosevelt Dam of C3 (along the Salt River). Draw the map key for a dam.
- 11 Find the Central Arizona Project Canal of C1, C2, C3 and M. Draw the symbol for the CAP system.

Central Arizona Project is a 246-mile long system of aqueducts, pumping plants, and pipelines which carries Colorado River water into central and southern Arizona. Originally printed by David B. Williams for ICA.

ACTIVITY WORKSHEET:
<https://library.cap-az.com/documents/education/AZ-Bodies-of-Water.pdf>

- ▲ = Mountain
- ▲ = Canyon
- ~ = River
- ☪ = Lake
- ▬ = Dam
- ~ = CAP Canal
- ★ = State Capital

Use, explore and construct maps, graphs and other geographical representations to support content focus. Key concepts include, but are not limited to, physical features (rivers, lakes, mountains, landforms, desert) and human features (dams, cities, parks, hospitals, schools, railroad tracks, farms, factories, houses).

Explain

Crosscutting Concept – Science and Engineering Practices

Develop and Use Models

Water Conservation Model

Objective:

Students will work with partners or in teams to create a picture model of ways to conserve water.

Discuss **Videos 1 and 2** (“A Leaky Faucet” and “It’s Important to Save Water”) and how Pearl measures the water being wasted. Have a class discussion about the importance of saving water.



VIDEO:

<http://bit.ly/LeakyFaucets>

Saving Water: **Use Video 3** (“Ways to Conserve Water”) as a springboard to discuss ways to save water. Let students know they will be working together to create a poster or model representing ways to save water. Write down examples of ways to conserve water on the board so that students can choose one example to help create a collaborative picture model.

Create a Model:

Give students an 11x17 or larger piece of paper and have them work with partners or in teams to create a picture model of ways to conserve water. If students cannot write the title “Ways to Conserve Water,” write the title ahead of time on the paper. Each student should add 1-2 pictures or descriptions of ways to save water (depending on grade level).

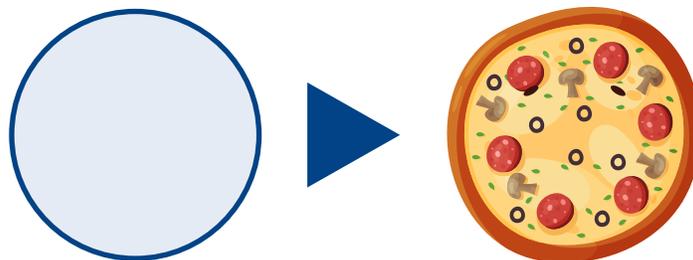
Elaborate

Hang posters up in a gallery walk. Give students 3 mini sticky notes that they will place on 3 pictures to vote on pictures that they think will have the most impact on water conservation. After all students place their sticky notes on the pictures, discuss which pictures have the most votes.

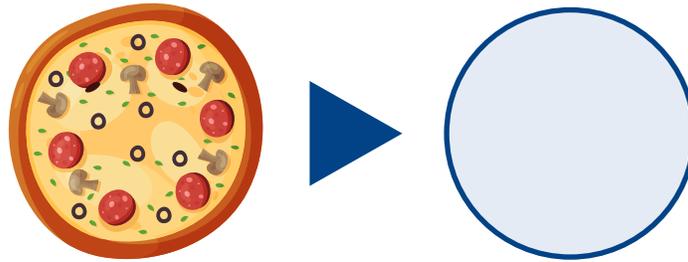
Cause and Effect Model

Objective:

Students will illustrate a cause and effect model that shows the relationship between water and an everyday food, such as pizza. Students will discuss the potential effects of not having enough available water and its consequences.



1. What does pizza have to do with water conservation? On the right, draw all the pizza ingredients that depend on fresh water.
2. Discuss what ingredients were drawn and have students compare their results with a partner or group.



- A. Draw the pizza with ingredients that do not need clean water.
- B. What did you notice?
I noticed that _____ because _____.
- C. What other food products can you think of that depend on water?

Extension:

Have students write 2-3 sentences explaining the importance of water in their everyday lives.

Optional sentence frames: Water is important because _____. It also _____. Conserving water is important because _____. Other foods I like that depend on fresh water are _____.

Spreading the Word:

As a group, think of ways you can spread the word about water conservation. List ideas on the board and vote on those ideas that could be easily implemented. Have students each create an individual poster that will convince others to save water.

Extensions

1. Read the following article to students: <https://library.cap-az.com/documents/education/Water-Awareness-Month.pdf>
Discuss the best ways to conserve water.
2. Have students come up with a 3-step plan to help implement water conservation at home or at school.
3. Have students write a persuasive essay to the principal to convince him to help conserve water at school.
4. Monitor water usage for a week in a journal and come back and share the results as a class. A water journal from NSTA can be accessed here: <http://bit.ly/WaterDiary>
5. Water Trivia: <http://bit.ly/WaterTrivia>
6. As a class, discuss the most fascinating fact learned about water.
7. Discuss the importance of having clean water. Visit the following site: <http://bit.ly/CAPNonFiction>
8. ELA connection: Discuss what can be learned from the following: <https://library.cap-az.com/documents/education/Studying-Our-Water-Future.pdf>
9. Read the book, "A Cool Drink of Water" by Barbara Kerley. Discuss what all the pictures in the book have in common.
10. Learn more about water conservation and how we all use water by visiting: www.discoverwater.org



Evaluate

Objective:

Students will explain what they know about water conservation orally, through a representation or by writing a series of short answers.

Students can answer the following questions orally by presenting an argument validating their reasons with examples, or justifying their answers on paper (grade 2).

Questions:

1. Why is water an important natural resource?
2. What are ways to conserve water?
3. What can you do to conserve water at home or at school?

The links and videos contained in parts of this lesson are provided for your convenience. Central Arizona Project does not endorse any of the linked content. The owners and creators of the content are third-party sites and solely responsible for their own content. If you have concerns about any of these links, please contact CAP directly at 623-869-2333.

STANDARDS: KINDERGARTEN

H₂O for Kids Standards Correlations

Lesson One

Science Standards

K.L1U1.6	Obtain, evaluate, and communicate information about how organisms use different body parts for survival.
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ELA Standards

K.W.8	With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.
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K.W.3	With guidance and support from adults, use a combination of drawing, dictating, and writing to compose an opinion piece in which they tell the reader the topic or book they are writing about and state an opinion or preference about the topic or book.
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K.SL.1	Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and large groups. <ul style="list-style-type: none">a) Follow agreed-upon rules for discussions (e.g. listening to others, taking turns speaking about the topics and texts under discussion).b) Continue a conversation through multiple exchanges.
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K.SL.2	Confirm understanding of a text read aloud or information presented orally or through other media by asking and answering questions about key details and requesting clarification if something is not understood.
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K.SL.3	Ask and answer questions in order to seek help, get information, or clarify something that is not understood.
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K.SL.5	Add drawings or other visual displays to descriptions as desired to provide additional detail.
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K.E2.1	Explain how needs, wants, and the availability of resources affect decision making.
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Social Studies Standards

K.SP3.1	With prompting and support, ask questions and construct responses to content studied.
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K.C1.3	Compare one's own thoughts and opinions with those of others.
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K.C4.1	Explain how people work together to identify and solve problems within the classroom and school.
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K.E2.1	Explain how needs, wants, and the availability of resources affect decision making.
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K.G2.1	Explain how water and weather impacts humans.
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STANDARDS: FIRST GRADE

H₂O for Kids Standards Correlations

Lesson One

Science Standards	
L2U2.7	Develop and use models about how living things use resources to grow and survive; design and evaluate habitats for organisms using Earth materials.
E1U1.5	Obtain, evaluate, and communicate information about the properties of Earth materials and investigate how humans use natural resources in everyday life.

ELA Standards	
1.W.8	With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.
1.SL.1	Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups. <ul style="list-style-type: none">a) Follow agreed-upon rules for discussions (e.g. listening to others, taking turns speaking about the topics and texts under discussion).b) Build on others' talk in conversations by responding to the comments of others through multiple exchanges.c) Ask questions to clear up any confusion about the topics and texts under discussion.
1.SL.2	Ask and answer questions about key details in a text read aloud or information presented orally or through other media.
1.SL.3	Ask and answer questions about what a speaker says in order to gather additional information or clarify something that is not understood.
1. SL.5	Add drawings or other visual displays to descriptions when appropriate to clarify ideas, thoughts, and feelings.

Social Studies Standards	
1.SP3.2	With support, identify evidence drawn from multiple sources to answer questions about issues in your community.
1.SP3.3	With support, construct and communicate solutions to issues in your community.
1.C1.3	Compare one's own thoughts and opinions with others' perspectives.
1.C3.3	Explain how community groups work to accomplish common tasks and fulfill responsibilities. <ul style="list-style-type: none">a) Such as voting, volunteering, community clean-up or recycling campaigns, and becoming informed on community issues. (water conservation)
1.G1.1	Use, explore and construct maps, graphs and other geographical representations to support content focus.
1.G1.2	Use a grid to locate places.
1.G2.1	Compare how human activities affect culture and the environment now and in the past.
1.G3.1	Explain why and how people, goods, and ideas move from place to place.

STANDARDS: SECOND GRADE

H₂O for Kids Standards Correlations

Lesson One

Science Standards

2.E1U1.5	Develop and use models to represent that water can exist in different states and is found in oceans, glaciers, lakes, rivers, ponds, and the atmosphere.
2.E1U3.7	Construct an argument from evidence regarding positive and negative changes in water and land systems that impact humans and the environment.

ELA Standards

2.W.8	Recall information from experiences or gather information from provided sources to answer a question.
2.SL.1	Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups. a) Follow agreed-upon rules for discussions (e.g. listening to others, taking turns speaking about the topics and texts under discussion). b) Build on others' talk in conversations by linking their comments to the remarks of others. c) Ask for clarification and further explanation as needed about the topics and texts under discussion.
2.SL.2	Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.
2.SL.3	Ask and answer questions about what a speaker says in order to clarify comprehension, gather additional information, or deepen understanding about a topic or issue.

Social Studies Standards

2.SP3.3	Generate questions about a source as it relates to an event or development.
2.G2.1	Explain how weather, climate, and other environmental characteristics affect people's lives in a place or region being studied.
2.G1.2	Describe how human activities affect the communities and the environment of places or regions.
2.G2.3	Describe the positive and negative effects of using natural resources.



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