



Utility Exploration Center Unit Plan



Exploring Utilities!

Grade

Kindergarten

NGSS standards

[K-ESS2-2](#)

[K-ESS3-3](#)

Time

2.5 hours, over 4 days

In this lesson we will take a look at how utilities provide many of the resources we depend on every day. Utilities want everyone to use resources wisely.

The same resources people need to grow and survive are closely related to what plants and animals need: water, sun/energy, food, etc. If all living things are using the same resources, let's make sure there's enough to go around.

Description

Explore the environment around us and how we can make a positive impact on the earth. Introduce and understand the different utilities we use every day.

Learning Outcomes

- Students will begin to understand what is good and bad for the environment.
- Students will be able to identify the different utilities that we use and why we use them.

Materials List

- Soil
- Seeds (something easy and quick to grow like radishes or beans)
- Bright sunny day!
- Cupcake pan
- Water
- Ice cube
- Leaf or piece of lettuce
- Wood chip
- Crayon
- Chocolate
- Hard candy
- Small rock
- Crayons/pencil/colored pencils
- Paper
- Dice
- Scissors
- Open space, students should be able to move around safely
- Book: How Plants Grow
- Book: Watch Over Our Water



Performance Expectation(s)

- Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.
- Communicate solutions that will reduce the impact of humans on the land, water, air and/or other living things in the local environment (save water, save energy, make less waste, etc.).

Phenomena / Essential Question(s)

Phenomena: Students experience the magic of planting a seed and watching it grow.

Essential Question(s): What does a plant need to grow? What do we as humans need to grow? How do we get what we need to grow?

NARRATIVE / BACKGROUND INFORMATION

Prior Student Knowledge

No previous knowledge

Life Experience

- Throwing something away in the garbage, turning on the faucet to brush your teeth and flipping on the switch for your bedroom light are all experiences most students have had by Kindergarten.

Teacher Background Information

This lesson introduces many of the utilities we interact with at home and school every day. The Utility Exploration Center (roseville.ca.us/explore) is here for you as a resource for any questions you might have about our Roseville Utilities. Don't hesitate to ask us directly (rucec@roseville.ca.us). Roseville Utility websites are a good resource as well: Environmental Utilities (roseville.ca.us/eu) and Roseville Electric Utility (roseville.ca.us/electric).

Science & Engineering Practices (SEPs)

- Engaging in argument from evidence in K–2 builds on prior experiences and progresses to comparing ideas and representations about the natural and designed world(s).
- Communicate solutions with others in oral and/or written forms using models and/or drawings that provide detail about scientific ideas.

Disciplinary Core Ideas (DCIs)

- Plants and animals can change their environment.
- Things that people do to live comfortably can affect the world around them. But they can make choices that reduce their impacts on the land, water, air and other living things.

Crosscutting Concepts (CCCs)

- Systems in the natural and designed world have parts that work together.
- Events have causes that generate observable patterns.



Possible Preconceptions/Misconceptions

Misconception: Everything that is here will always be here.

Truth: All resources that we need as humans have a limited supply. If we do not use them responsibly, they may no longer be available to us.

Misconception: I'm too young to make a difference.

Truth: Making a positive impact on the environment can start at any age.

Distance Learning Variations

- Provide materials at regularly scheduled pick up times including hard to find at home things like:
 - Seeds, printed worksheets, matching cards, dice, etc.
- Find a balance between when students watch videos on their own and when they watch them as a class during live sessions (i.e., videos over 2-3 minutes are watched on their own).
- All activities are done individually versus as a class and in the home environment rather than at school.
- If acquiring the book "Watch Over Water" proves difficult or is hard to read to students via your remote learning platform, use this YouTube Video link of someone else reading the book: "[Watch Over Our Water.](#)"
- Provide parents with the list of games (Elaborate section) and materials and have the student choose 2 to do with their family.
- Use the guiding questions during live discussion (video chat with class) to evaluate students' understanding.

LESSON PLAN – 5E MODEL



Estimated time: 20-30 minutes

Watch Video: [Grover talks about Plants](#) (2:44min)

- Shows the students what a plant needs to grow.
- Guiding Question (after watching video): What did the plant need to grow?

Read a book aloud about what it takes for a plant to grow. [How Plants Grow](#) (Amazon, \$6-7)

- This story will give students another example of what it takes to grow a plant and lead into how they will care for their plant.

Plant a Garden

- Each student receives a dixie cup or small container they can use to plant a seed.
 - Now that the students are starting to understand what a plant needs to grow, you can begin to connect plant growth to what people may need. How do we get those resources?
- Guiding Question: Do you think we need the same things a plant needs to grow?
- Check on seeds daily to observe the changes.



EXPLORE

Estimated time: 30-45 minutes

Does It Melt? [Activity](#)

- In class experiment students are able to see how the energy from the sun works and affects the environment around us. Using a cupcake pan as a container, students choose different materials and place them in the sun. Then, they observe changes to each item while asking the question, "Does It Melt?"

Can You Find It? [Utility Scavenger Hunt](#)

- Students use this check list introducing places utilities are found and search for them around their home or school.



EXPLAIN

Estimated time: 30 minutes

Big Trucks Videos (~2 min ea.)

- Each video provides a quick visual of the different Roseville Utility trucks and their jobs.
 - [Water Utility](#)
 - [Electric Utility](#)
 - [Wastewater Utility](#)
 - [Waste Services Utility](#)

Read aloud the story [Watch Over Our Water](#) (Amazon, \$8)

- Read this story to the class to introduce the importance of our water.
- OR watch this YouTube Video of someone else reading the book, "Watch Over Our Water."

Take Home Workbook [Explore It](#)

- Print the pages and provide one copy to each student. Each page in the workbook includes a letter that represents a different utility. There are colorable images within the letter which give examples of the word. Students are asked to trace and write their own sentence at the bottom of the worksheet. (Optional Homework Opportunity)
- Once complete, discuss as a class.
 - Guiding Questions: What utility did you learn about today? What does it do to help our home?
 - Listen for new vocabulary



Vocabulary [Images](#)

Utility: a provided service for your home or business (such as power, sewage treatment, trash collection or water)

Energy: the capacity of acting or being active; the ability to do work

Power: a source or means of supplying energy

Stormwater: rainwater produced by a storm

Trash: discarded or useless material

Flush: to cleanse or wash out with a rush of liquid

Wastewater: water that has been used, usually carried off by sewers

Environment: the surroundings or conditions in which a person, animal or plant lives or operates



ELABORATE

Estimated time: 15-20 minutes per game

[Utility Matching Game](#)

- After printing these cards, students will find matches and then identify the utility match they found. Game can be played as a large group or in pairs.

[Trash Sorting Explore It \(Waste\)](#)

- Distribute worksheet to showcase the different ways we sort our trash. Students cut out the pieces of trash and sort them into categories.

[4 Corners of Trash \(Waste\)](#)

- Students in a classroom or outside in the playground play the game Four Corners, with each corner representing a different way to reduce our waste.

[Energy Walk \(Electric\)](#) *Students need adult help with reading.

- Students play a large board game to explore ways to save (or ways they may be wasting) electricity. The students are the game pieces. They roll the dice to start and move forward or backward on the board depending on the squares they land on.

[Water Matching Game \(Water\)](#)

- Students play an online game matching cards together. Once they get a match, the game tells them facts and ways to save water.

[Utility Bingo Explore It](#) *Students need adult help with reading.

- Students play bingo and mark things they have done either at home or in class.



EVALUATE

Estimated time: completed during above sections/no additional time

Formative Monitoring (Guiding Questions / Discussion):

- While talking with students about what they did, pay close attention to the use of above vocabulary and what they learned in identifying each utility. Students check on their seed to see how it has changed.

Guiding Questions throughout:

- What does a plant need to grow?
- Were there things that affected how the plant grows?
- What are some things we throw away? How should we sort them?
- What happens when we leave things out in the sun?
- What do we need to grow?
- What is a utility?

Summative Assessment (Quiz / Project / Report):

- Complete Take Home Workbook. Discussion and responses from Table Talk found in each activity (with parents or teacher).

Questions for at home:

- What utility did you learn about today? What does it do to help our home/Earth?

COMMON CORE STATE STANDARDS CONNECTIONS ELA

- W.K.2 Use a combination of drawing, dictating and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic. (K-ESS2-2)
- R.K.1 With prompting and support, ask and answer questions about key details in a text. (K-ESS2-2)



Resource Links

In case hyperlinks above get broken, here is a detailed list of links.

- **K-ESS2-2:** www.nextgenscience.org/pe/k-ess2-2-earths-systems
- **K-ESS3-3:** www.nextgenscience.org/pe/k-ess3-3-earth-and-human-activity
- **Sesame Street Grover Talks About Plants:** www.youtube.com/watch?v=ZDjFZVqiLvY&feature=emb_title
- **How Plants Grow Book:** www.amazon.com/Plants-Grow-KIDS%C2%AE-Nonfiction-Readers/dp/1433335778/ref=sr_1_1?dchild=1&keywords=books+about+how+plants+grow&qid=1594760668&s=books&sr=1-1
- **Our Energy Source:** needtoknow.nas.edu/energy/energy-sources/the-sun/
- **Why Do Things Melt When They Get Hot?:** www.wonderopolis.org/wonder/why-do-things-melt-when-they-get-hot
- **The Power of the Sun:** www.nationalgeographic.org/article/power-sun/
- **Energy Sources:** www.energy.gov/science-innovation/energy-sources
- **Where Does My Drinking Water Come From?:** www.americanrivers.org/rivers/discover-your-river/drinking-water/?gclid=CjwKCAjw9vn4BRBaEiwAh0muDPrSlq3JG5AO4H5cPmXAtheHxycyxP53hP_C4y57Yfv0YQ_I6ZJHpRoC9c8QAvD_BwE
- **Where Does Your Water Go?:** www.mywatershedwatch.org/residents/where-does-your-water-go/
- **Big Trucks Water Utility:** www.youtube.com/watch?v=CjKy1LWbp5Q&feature=emb_title
- **Big Trucks Electric Utility:** www.youtube.com/watch?v=zwgTiVRqAJ0&feature=emb_title
- **Big Trucks Wastewater Utility:** www.youtube.com/watch?v=NwLCS-RrEKU&feature=emb_title
- **Big Trucks Waste Services:** www.youtube.com/watch?v=jY5TCEwOPRc&feature=emb_title
- **Watch Over Our Water Book:** www.amazon.com/Watch-over-Water-Cloverleaf-Books/dp/0761385177/ref=pd_vtp_14_7?_encoding=UTF8&pd_rd_i=0761385177&pd_rd_r=119ec12c-a090-4c18-8b56-7187ece2126f&pd_rd_w=rK71b&pd_rd_wg=zXiWk&pf_rd_p=a273be28-df43-4612-81c3-8760217603f2&pf_rd_r=KSF3EE75C76XC80XTJHR&pvc=1&refRID=KSF3EE75C76XC80XTJHR
- **Watch Over Our Water Video:** www.youtube.com/watch?v=V1O3WipRhwQ&feature=emb_title
- **13 Tips on Sorting Trash:** believe.earth/en/13-tips-on-sorting-waste/
- **What Does Waste Management Do with Trash Anyway?:** www.wm.com/about/community/pdfs/follow_the_waste_stream.pdf
- **10 Ways to Save Energy, Waste, and Money With a More Sustainable Home:** earthwatch.org/stories/10-ways-save-energy-waste-and-money-more-sustainable-home?gclid=CjwKCAjw34n5BRA9EiwA2u9k3xGz58QeWC4OtuFanWZSJVFszFIN0OhFws37bGp5wxD2qNZ7F402qRoCAi0QAvD_BwE
- **Water Matching Game:** wateruseitwisely.com/tip-tank-game/
- These documents can be found on our website (www.roseville.ca.us/gradeskand1): Does It Melt Worksheet, Can You Find it Worksheet, Utility Matching Game, Trash Sorting Activity, 4 Corners of Trash Activity, Energy Walk Activity, Utility Bingo Game, Vocabulary