



Lesson Plan

3 of 4

Exploring Local Water Use and Conservation

Created: 07/2025 by the National FFA Organization

Description of Lesson: Water conservation is not just a global or national issue, it is a local one. In this lesson, students will learn about where water comes from and how it gets to where it needs to go for local use. They will explore the usage patterns in their state or community and think about ways in which they can advocate for conservation on a local level. Finally, students will participate in a simulated water allocation discussion and make decisions for how to best allocate limited water resources within a community, advocating for their own needs while negotiating for ways in which the needs of everyone in the community may be met.

Thank you to our current partners in sustainability:



Student Learning Objectives:

After completing these activities, students will ...

1. Define the various sources of water.
2. Explore water sources and use within their local community.
3. Advocate for water needs and conservation practices within a simulated water resource allocation discussion.

Suggested Grade Level:

Grades 9 and 10 (This lesson is written so instructors can scale up or down based on class needs.)

Suggested Time: 90 minutes (*Time requirements may vary based upon student understanding and class schedule.)

Resources/References:

1. Website: U.S. Geological Survey (USGS), Groundwater Information, <https://www.usgs.gov/special-topics/water-science-school/science/groundwater>
2. Website: Environmental Protection Agency (EPA), Water Topics, <https://www.epa.gov/environmental-topics/water-topics>
3. Website: National Geographic, Freshwater Resources, <https://education.nationalgeographic.org/resource/freshwater-resources/>
4. Website: Alliance for Water Efficiency, "Greywater Reuse," <https://www.allianceforwaterefficiency.org/resources/topic/greywater>

Related Resources:

1. Food and Agricultural Literacy Curriculum, Natural Resources, Unit 3: Water, <https://FFA.box.com/s/w5ypjcs5s1v6h5er5819j2lcvicvzdoq>
2. AgExplorer Sustainability Systems Focus Area, AgExplorer.FFA.org/focus/sustainability-systems/
3. Introduction to Sustainability Lesson Series, <https://FFA.box.com/v/introtosustainability>
4. Darling Ingredients Educational Resources, <https://FFA.box.com/s/3ko8e9w6zygohvlewfsnc8byobjzeuxa>
5. Valent — Sustainability in Agriculture Lesson Series, <https://FFA.box.com/v/sustainabilityinagriculture>

Equipment and Supplies Needed:

1. A copy of the “Water, Water Everywhere” student activity sheet for each student
2. A copy of “[Appendix 1: Where Does Our Water Come From? Understanding Water Sources](#)” article for each student
3. A copy of the “Our Community, Our Water” student activity sheet for each student
4. A copy of the “Let’s Talk About Water” student activity sheet for each student
5. Copies of “[Appendix 2: Water User Role Cards](#)” for each group of students
6. Internet access to play the video in real time or embed in a PowerPoint ahead of time
7. Student devices with internet access

Vocabulary:

1. Aquifer
2. Drought
3. Grey Water
4. Groundwater
5. Precipitation
6. Rainwater
7. Reservoir
8. Surface Water

Cross-Curricular Connections:

English/Language Arts	Technology	Mathematics	Social Studies
Define water resource vocabulary terms. Participate in a collaborative discussion about water resource allocation within a community.	Use local or state resources and websites to explore water sources and usage in the area.	Create a pie chart representing water usage in the area.	Explore the patterns and issues surrounding water resources in the local area or state. Simulate how different groups' interests and needs must be balanced when allocating common resources.

SAE and FFA Connections

1. Agricultural Issues Forum LDE, FFA.org/participate/cde-lde/agricultural-issues-forum/
2. Environmental and Natural Resources CDE, FFA.org/participate/cdes/environmental-and-natural-resources/
3. Agricultural Proficiency Areas: Environmental Science and Natural Resources Management, FFA.org/participate/awards/proficiencies/
4. Foundational SAE Connections: Agricultural Literacy

Student Activity Sheets:

Direct access to student activity sheets without lesson plan or answer key for easy upload to a learning management system or printing for classwork.

<https://ffa.box.com/s/5fbi6oe0xd3j0rnixmingq1xhr64nnheb> (Word)

<https://ffa.box.com/s/1m3qhwqhernlkmtpqgn1bf2rcwiv0c2> (PDF)

<https://docs.google.com/document/d/1eqpUJJeKpkOd6WoDsnR7pQgbZS4kaOHKK8svdqTsf36M/copy> (Google)

These Activities Are Aligned to the Following Standards:

AFNR Performance Element

- CS.03. Examine and summarize the importance of health, safety and environmental management systems in AFNR workplaces.
- CS.04. Demonstrate stewardship of natural resources in AFNR activities.
- NRS.01. Plan and conduct natural resource management activities that apply logical, reasoned, and scientifically based solutions to natural resource issues and goals.
- NRS.02. Analyze the interrelationships between natural resources and humans.
- NRS.04. Demonstrate responsible management procedures and techniques to protect, maintain, enhance, and improve natural resources.

FFA Precept

- FFA.PL-A.Action: Assume responsibility and take the necessary steps to achieve the desired results, no matter what the goal or task at hand.
- FFA.PL-B.Relationship: Build relationships, work as a team player and appreciate the talents of others.
- FFA.PL-C.Vision: Visualize the future and how to get there.
- FFA.PL-D.Character: Conduct oneself appropriately in relation to others regardless of the situation.
- FFA.PL-E.Awareness: Understand personal vision, mission and goals.
- FFA.PG-H.Social Growth: Successfully interact with others and adapt to various social situations.
- FFA.CS-M.Communication: Effectively interact with others in personal and professional settings.
- FFA.CS-N.Decision Making: Analyze a situation and execute an appropriate course of action.
- FFA.CS-O.Flexibility/Adaptability: Be flexible in various situations and adapt to change.

Common Career Technical Core

- AG3 Examine and summarize the importance of health, safety, and environmental management systems in AFNR businesses.
- AG4 Demonstrate stewardship of natural resources in AFNR activities.
- AG-NR1 Plan and conduct natural resource management activities that apply logical, reasoned, and scientifically based solutions to natural resource issues and goals.
- AG-NR2 Analyze the interrelationships between natural resources and humans.
- AG-NR4 Demonstrate responsible management procedures and techniques to protect or maintain natural resources.

NASDCTEc

- AGPE01.01 Conduct system management activities in natural habitats to demonstrate recognition of the important relationships between natural resource preservation and human intervention.
- AGPE01.03 Apply scientific principle and processes when planning and conducting natural resource management activities to determine the need, feasibility and application of logical, reasoned solutions to natural resource system problems and issues.
- AGPE01.05 Practice responsible control and management procedures and techniques to protect or maintain natural resources in a variety of settings.

Common Core – Writing

- CCSS.ELA-Literacy.W.9-10.2 Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.

Common Core – Speaking and Listening

- CCSS.ELA-LITERACY.SL.9-10.1 Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9-10 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.
- CCSS.ELA-LITERACY.SL.9-10.6 Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.

Common Core – Language

- CCSS.ELA-LITERACY.L.9-10.6 Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

Common Core – Science & Technical Subjects

- CCSS.ELA-Literacy.RST.9.10.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 9-10 texts and topics.
- CCSS.ELA-Literacy.RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.

Common Core – Literacy in Science & Technical Subjects: Writing

- CCSS.ELA-Literacy.WHST.9.10.1 Write arguments focused on discipline-specific content.

Common Core – Math Practices

- CCSS.MATH.PRACTICE.MP1 Make sense of problems and persevere in solving them.
- CCSS.MATH.PRACTICE.MP2 Reason abstractly and quantitatively.
- CCSS.MATH.PRACTICE.MP4 Model with mathematics.

Next Generation Science

- HS-ETS1-3 Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics as well as possible social, cultural, and environmental impacts.

Green/Sustainability Knowledge and Skill Statements

- AFNR Career Cluster, Statement 1 Apply understanding of ecosystems and systems thinking to the management of natural resources to maximize the health and productivity of the environment, agriculture, communities, and society.
- AFNR Career Cluster, Statement 3 Communicate the impact of green and sustainability principles on agriculture, food and natural resource systems.
- AFNR Career Cluster, Statement 7 Demonstrate an understanding of green and sustainability trends that are impacting processes and markets in AFNR.
- AFNR Career Cluster-Natural Resources Systems Pathway, Statement 2 Develop strategies to influence natural resource management and utilization policies and practices through application of sustainability principles.

AFNR Career Ready Practices

- CRP.02. Apply appropriate academic and technical skills. Career-ready individuals readily access and use the knowledge and skills acquired through experience and education to be more productive.
- CRP.04. Communicate clearly, effectively, and with reason. Career-ready individuals communicate thoughts, ideas and action plans with clarity, whether using written, verbal and/or visual methods.
- CRP.05. Consider the environmental, social and economic impact of decisions. Career-ready individuals understand the interrelated nature of their actions and regularly make decisions that positively impact and/or mitigate negative impact on other people, organizations and the environment.
- CRP.06. Demonstrate creativity and innovation. Career-ready individuals regularly think of ideas that solve problems in new and different ways, and they contribute those ideas in a useful and productive manner to improve their organization.
- CRP.08. Utilize critical thinking to make sense of problems and persevere in solving them. Career-ready individuals readily recognize problems in the workplace, understand the nature of the problem, and devise effective plans to solve the problem.
- CRP.11. Use technology to enhance productivity. Career-ready individuals find and maximize the productive value of existing and new technology to accomplish workplace tasks and solve workplace problems.

Partnership for 21st Century Skills

- Communication
- Critical Thinking and Problem Solving
- Environmental Literacy
- Global Awareness
- Information, Communications, and Technology Literacy
- Initiative and Self-direction
- Leadership and Responsibility
- Technology Literacy
- Think Creatively

Lesson Plan:

1. **Bell Ringer:** What do you think is the most common way that water is used in your state or community?
2. **Introduction:** Begin by showing students the video “How We Use Water” (<https://youtu.be/dEmYud2wGlc?si=C0EmebmGGLms4pP8>). Ask students: *After watching the video, does your answer to the bell ringer questions change?* and *What other ways can you think of that water is used in our community?* Discuss that some of the major ways that water is used include residential/municipal, agricultural, industrial, power generation and recreational and give local examples of each. Say: *Water conservation is definitely a global and national issue, but it is also a regional and local issue. It's important for us to know about where our local water comes from, how it's used and how we can contribute to conserving it.*
3. **Activity:** (20 minutes) Each student needs a copy of the student activity sheet “Water, Water Everywhere.”
 - a. Students will read a brief article (Appendix 1: Where Does Our Water Come From? Understanding Water Sources). As they read, they will highlight or underline eight key vocabulary terms that relate to water sources. On their student activity sheets, they will define each of the terms and answer comprehension questions from the article.
4. **Activity:** (20 minutes) Each student needs a copy of the student activity sheet “Our Community, Our Water.”
 - a. **Teacher Preparation Note:** It would be helpful for you to gather local links or resources ahead of time that students can use for this activity. Consider searching for local water companies, conservation districts, irrigation districts, state, county or local water/natural resources offices or any other state or local organizations or governments you could point students toward for this information. Students may also conduct their own research in addition to your provided sources.
 - b. Say: *It's easy to forget where our water comes from. Today, we're looking at the water story in our own community and how different sectors use it.* Using the sources that you provide as well as any that they can find on their own, students will answer questions on their student activity sheets about local water sources and use patterns. Depending on the sources available, this activity can be done from a statewide perspective or a city/town/community perspective.
5. **Activity:** (40 minutes) Each student needs a copy of the student activity sheet “Let's Talk About Water.”
 - a. **Teacher Facilitation Note:** Depending on the size and needs of your class, you may divide students into groups or complete this activity as a whole class. If you choose to divide the class into groups, ensure each group has a variety of roles as described below. The suggested amount of water to provide students to allocate is 100,000 gallons; however, you may choose to alter the amount of water resources given to ensure there is a scarcity and negotiations and decisions will have to be made.
 - b. Set the stage by saying: *Imagine we live in a community where water resources are limited due to a recent drought. We have a set amount of water that must be allocated among different groups with differing needs in the community. Your goal is to decide how to share this limited water in a way that ensures everyone's needs are met.*
 - c. Assign roles to students using “Appendix 2: Water User Role Cards.” Students will act in these roles for this activity and attempt to advocate and negotiate for their water needs based on the information on their role cards. Give students 10 minutes or so to review their role cards and begin to think about their needs and negotiation strategies. They may use the questions on their student activity sheets to guide their thinking.
 - d. Say: *Each group has a specific need for water, and it's up to you to figure out how to distribute the available water fairly. The roles in your group will need different amounts of water. The total water available for the community is limited, so you'll have to negotiate and collaborate.* Provide students with the number of gallons they have to allocate and allow the conversation to begin. (Allow groups 10 to 15 minutes to discuss and negotiate for their water needs.)
 - e. After finishing their conversations, hold a brief class discussion about the experience. You may use any or all of the following questions as discussion points:
 - i. How did your group prioritize water needs among different roles?
 - ii. Were there any disagreements about how to allocate the water? How did your group resolve them?
 - iii. What were the most challenging decisions in allocating water?
 - iv. Did any group have to compromise more than others?
 - v. Did everyone get their fair share? How did you negotiate?
 - vi. If there was more water available, would you have distributed it differently?
 - vii. How can individual water-saving actions make a difference in this scenario?

- viii. What can people do to reduce their water consumption at home or in agriculture?
 - ix. What is one thing you learned today about the balance between water conservation and maintaining essential services?
 - f. Have students answer the reflection questions on their student activity sheets.
6. **Follow-up:** Say: *Water is a precious and scarce resource, and it is vital that each of us does our part to manage our use well and conserve it as much as possible. It can be very challenging to navigate the many needs of different individuals and groups when it comes to water, but if we work together and are willing and able to compromise a bit, we can often come to a solution that ensures no one group suffers too many ill effects.*
7. **Optional – Extended Learning Opportunities (Not factored into time requirement):**
- a. Invite a local water official into your classroom to speak with your students about local water sources, water use patterns and local water issues facing your community.
 - b. Students could take their discussion from Activity 3 and rework it using the framework from the Agricultural Issues Forum LDE and compete in your local/state events.
8. **Exit Ticket:** What do you think is the most challenging thing about water conservation? Why?

Name: _____

Water, Water Everywhere

Aligned to the following standards:
CS.03; CS.04; NRS.01; NRS.02; NRS.04; FFA.PL-A; FFA.PL-B; FFA.PL-C; FFA.PL-D;
FFA.PL-F; FFA.PL-H; FFA.PL-M; FFA.PL-N; FFA.PL-O; AG3; AG4; AG-NR1; AG-NR2;
AG-NR4; CCSS.ELA.W.9-10.2; CCSS.ELA.SL.9-10.1; CCSS.ELA.SL.9-10.6; CCSS.ELA.L.9-
10.6; CCSS.ELA.RST.9.10.4; CCSS.ELA.RST.11-12.9 CCSS.ELA.WHST.9.10.1; MPI; MP2;
MP4; CCSS.HSS.ID.A.1; HS-ETS1-3; CRP.02; CRP.04; CRP.05; CRP.06; CRP.08; CRP.11;

Directions: Read a brief article (Appendix 1: Where Does Our Water Come From? Understanding Water Sources). As you read, highlight or underline eight key vocabulary terms that relate to water sources and supply. Define each of the terms and answer comprehension questions from the article below.

Vocabulary Term	Definition (One sentence)

Comprehension Questions:

1. Explain the difference between groundwater and surface water.
2. Describe how precipitation connects to other types of water sources.
3. Why is it important to understand where your water comes from? How can this knowledge affect your water use?

Name: _____

Our Community, Our Water

Aligned to the following standards:
CS.03; CS.04; NRS.01; NRS.02; NRS.04; FFA.PL-A; FFA.PL-B; FFA.PL-C; FFA.PL-D;
FFA.PL-F; FFA.PL-H; FFA.PL-M; FFA.PL-N; FFA.PL-O; AG3; AG4; AG-NR1; AG-NR2;
AG-NR4; CCSS.ELA.W.9-10.2; CCSS.ELA.SL.9-10.1; CCSS.ELA.SL.9-10.6; CCSS.ELA.L.9-10.6; CCSS.ELA.RST.9.10.4; CCSS.ELA.RST.11-12.9 CCSS.ELA.WHST.9.10.1; MP1; MP2; MP4; CCSS.HSS.ID.A.1; HS-ETS1-3; CRP.02; CRP.04; CRP.05; CRP.06; CRP.08; CRP.11;

Directions: Research water in your state or community and answer the questions below.

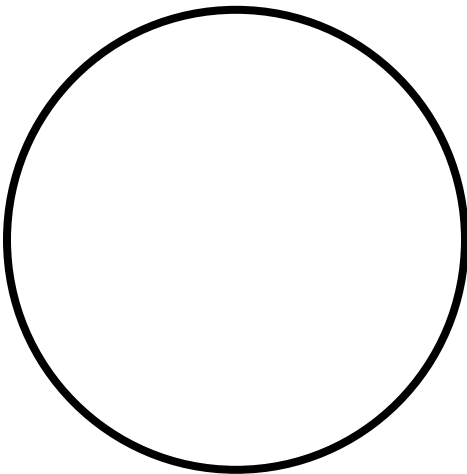
1. List the main sources of water in your community and which type of water source (from the article) they are.

Water Source	Type of Source

2. How is the water distributed from these sources to your community? (Who or what is involved in the process?)

3. List the categories of water usage in your community (i.e., agricultural, industrial, residential, etc.) and the amount or percentage used for each category. (You may not use all lines.)

Water Usage Category	Amount of Water Used <i>(Volume or Percentage)</i>



4. Use the provided circle to create a pie chart representing water use in your community. Be sure to label each section with which category it represents.

Name: _____

5. Pick two of the largest water use categories in your community and further break them down into specific activities within each category. (For example, breaking down residential use into washing dishes, showering, etc.)

Selected Category 1:

List at least five activities you can think of within this category.

- a.
- b.
- c.
- d.
- e.

Selected Category 2:

List at least five activities you can think of within this category.

- a.
- b.
- c.
- d.
- e.

Now, highlight one activity from each list above, and next to it, write a potential water conservation practice that could reduce water consumption for that activity in your community.

6. What surprised you the most about where your community's water comes from and how it is used?
7. What challenges or opportunities do you think your community will face in the future when it comes to water conservation and management?
8. What are some solutions you think could help improve the sustainability of water use in your community?

Name: _____

Let's Talk About Water

Aligned to the following standards:
CS.03; CS.04; NRS.01; NRS.02; NRS.04; FFA.PL-A; FFA.PL-B; FFA.PL-C; FFA.PL-D;
FFA.PL-F; FFA.PL-H; FFA.PL-M; FFA.PL-N; FFA.PL-O; AG3; AG4; AG-NR1; AG-NR2;
AG-NR4; CCSS.ELA.W.9-10.2; CCSS.ELA.SL.9-10.1; CCSS.ELA.SL.9-10.6; CCSS.ELA.L.9-10.6; CCSS.ELA.RST.9.10.4; CCSS.ELA.RST.11-12.9 CCSS.ELA.WHST.9.10.1; MP1; MP2; MP4; CCSS.HSS.ID.A.1; HS-ETS1-3; CRP.02; CRP.04; CRP.05; CRP.06; CRP.08; CRP.11;

Part 1

Directions: Read the role card that you've been assigned for this activity and use the table below to explain your role and begin to think through how you want to approach the community conversation.

My Role:	My Water Need: <i>How many gallons per day?</i>
Total Water Allotment: <i>How much total water is available for use in your community?</i>	
My Water Priorities: <i>What do you need the water for? List uses in order of how essential each item is to you, most important first.</i> • • • • •	
Potential Compromises: <i>What are three ways you could potentially compromise to help meet the water needs of the community without completely sacrificing your own needs?</i> 1. 2. 3.	

Part 2

Directions: Reflect on the community water conservation conversation and answer the questions below.

1. List the groups that were part of the conversation you participated in and their final water allotments in the table below.

Water User	Amount of Water Allotted
Total:	

Name: _____

2. How did your group prioritize water needs among the different roles?
3. Were there any disagreements about how to allocate the water? How did your group resolve them?
4. What were the most challenging decisions in allocating water?
5. If there was more water available, would you have distributed it differently?
6. What was the impact of not allocating enough water to certain sectors (e.g., farms, schools, factories)?
7. What is one thing you learned today about the balance between water conservation and maintaining essential services?

Name: _____

Aligned to the following standards:

CS.03; CS.04; NRS.01; NRS.02; NRS.04; FFA.PL-A; FFA.PL-B; FFA.PL-C;
FFA.PL-D; FFA.PL-F; FFA.PL-H; FFA.PL-M; FFA.PL-N; FFA.PL-O; AG3; AG4;
AG-NR1; AG-NR2; AG-NR4; CCSS.ELA.W.9-10.2; CCSS.ELA.SL.9-10.1;
CCSS.ELA.SL.9-10.6; CCSS.ELA.L.9-10.6; CCSS.ELA.RST.9.10.4; CCSS.ELA.RST.11-
12.9 CCSS.ELA.WHST.9.10.1; MP1; MP2; MP4; CCSS.HSS.ID.A.1; HS-ETS1-3;
CRP.02; CRP.04; CRP.05; CRP.06; CRP.08; CRP.11;

KEY: Water, Water Everywhere

Directions: Read a brief article (Appendix 1: Where Does Our Water Come From? Understanding Water Sources). As you read, highlight or underline eight key vocabulary terms that relate to water sources and supply. Define each of the terms and answer comprehension questions from the article below.

Vocabulary Term	Definition (One sentence)
Precipitation	This is any form of water that falls from the sky, including rain, snow, sleet or hail.
Surface water	The water you can see above ground. This includes all lakes, rivers, ponds and streams.
Groundwater	Water that soaks down into the soil and fills tiny spaces between rocks and soil underground
Aquifer	Large underground layers that store groundwater
Reservoir	A man-made or natural lake where water is stored for future use
Drought	A prolonged period with unusually dry weather, characterized by a lack of precipitation and resulting in a water shortage
Rainwater	A method of capturing precipitation directly from rooftops or other surfaces and storing it for later use
Grey water	Gently used water from sinks, showers, bathtubs and washing machines that is not clean enough to drink but can be reused for things like landscape irrigation or toilet flushing.

Comprehension Questions:

1. Explain the difference between groundwater and surface water.

Groundwater is stored within the soil in aquifers and must be brought to the surface using pumps or wells; surface water is readily available above ground in rivers, ponds and streams.

2. Describe how precipitation connects to other types of water sources.

All water sources start with precipitation (rain, snow, hail, etc.) falling to the earth.

3. Why is it important to understand where your water comes from? How can this knowledge affect your water use?

Water is essential for life, and understanding where it comes from helps us take better care of it. By learning how to conserve water and use it wisely, we can be part of the solution to protect our water future.

Name: _____

KEY: Our Community, Our Water

Aligned to the following standards:

CS.03; CS.04; NRS.01; NRS.02; NRS.04; FFA.PL-A; FFA.PL-B; FFA.PL-C; FFA.PL-D;
FFA.PL-F; FFA.PL-H; FFA.PL-M; FFA.PL-N; FFA.PL-O; AG3; AG4; AG-NR1; AG-NR2; AG-
NR4; CCSS.ELA.W.9-10.2; CCSS.ELA.SL.9-10.1; CCSS.ELA.SL.9-10.6; CCSS.ELA.L.9-10.6;
CCSS.ELA.RST.9.10.4; CCSS.ELA.RST.11-12.9 CCSS.ELA.WHST.9.10.1; MP1; MP2; MP4;
CCSS.HSS.ID.A.1; HS-ETS1-3; CRP.02; CRP.04; CRP.05; CRP.06; CRP.08; CRP.11

Directions: Research water in your state or community and answer the questions below.

1. List the main sources of water in your community and which type of water sources (from the article) they are.

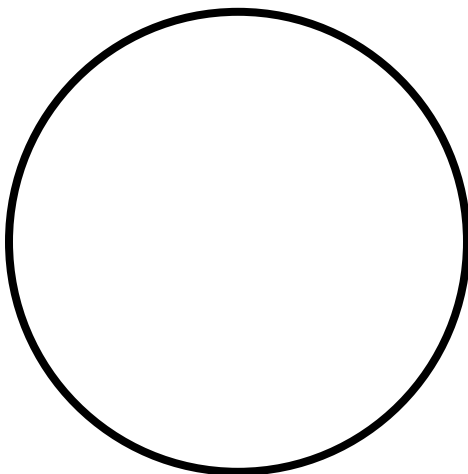
Water Source	Type of Source
Answers will vary.	Answers will vary.
Answers will vary.	Answers will vary.
Answers will vary.	Answers will vary.
Answers will vary.	Answers will vary.
Answers will vary.	Answers will vary.

2. How is the water distributed from these sources to your community? (Who or what is involved in the process?)

Answers will vary.

3. List the categories of water usage in your community (i.e., agricultural, industrial, residential, etc.) and the amount or percentage used for each category. (You may not use all lines.)

Water Usage Category	Amount of Water Used (Volume or Percentage)
Answers will vary.	Answers will vary.
Answers will vary.	Answers will vary.
Answers will vary.	Answers will vary.
Answers will vary.	Answers will vary.
Answers will vary.	Answers will vary.
Answers will vary.	Answers will vary.
Answers will vary.	Answers will vary.
Answers will vary.	Answers will vary.



4. Use the provided circle to create a pie chart representing water use in your community. Be sure to label each section with which category it represents.

Answers will vary.

Name: _____

5. Pick two of the largest water use categories in your community and further break them down into specific activities within each category. (For example, breaking down residential use into washing dishes, showering, etc.)

Selected Category 1:

List at least five activities you can think of within this category.

- a. Answers will vary.
- b. Answers will vary.
- c. Answers will vary.
- d. Answers will vary.
- e. Answers will vary.

Selected Category 2:

List at least five activities you can think of within this category.

- a. Answers will vary.
- b. Answers will vary.
- c. Answers will vary.
- d. Answers will vary.
- e. Answers will vary.

Now, highlight one activity from each list above, and next to it, write a potential water conservation practice that could reduce water consumption for that activity in your community.

6. What surprised you the most about where your community's water comes from and how it is used?

Answers will vary.

7. What challenges or opportunities do you think your community will face in the future when it comes to water conservation and management?

Answers will vary.

8. What are some solutions you think could help improve the sustainability of water use in your community?

Answers will vary.

Aligned to the following standards:
 CS.03; CS.04; NRS.01; NRS.02; NRS.04; FFA.PL-A; FFA.PL-B; FFA.PL-C; FFA.PL-D;
 FFA.PL-F; FFA.PL-H; FFA.PL-M; FFA.PL-N; FFA.PL-O; AG3; AG4; AG-NR1; AG-
 NR2; AG-NR4; CCSS.ELA.W.9-10.2; CCSS.ELA.SL.9-10.1; CCSS.ELA.SL.9-10.6;
 CCSS.ELA.L.9-10.6; CCSS.ELA.RST.9.10.4; CCSS.ELA.RST.11-12.9
 CCSS.ELA.WHST.9.10.1; MP1; MP2; MP4; CCSS.HSS.ID.A.1; HS-ETS1-3; CRP.02;
 CRP.04; CRP.05; CRP.06; CRP.08; CRP.11;

Name: _____

KEY: Let's Talk About Water

Part 1

Directions: Read the role card that you've been assigned for this activity and use the table below to explain your role and begin to think through how you want to approach the community conversation.

My Role: Answers will vary.	My Water Need: Answers will vary. How many gallons per day?
Total Water Allotment: Answers will vary. How much total water is available for use in your community?	
My Water Priorities: What do you need the water for? List uses in order of how essential each item is to you, most important first. - Answers will vary. - Answers will vary. - Answers will vary. - Answers will vary. - Answers will vary.	
Potential Compromises: What are three ways you could potentially compromise to help meet the water needs of the community without completely sacrificing your own needs? - Answers will vary. - Answers will vary. - Answers will vary.	

Part 2

Directions: Reflect on the community water conservation conversation and answer the questions below.

- List the groups that were part of the conversation you participated in and their final water allotments in the table below.

Water User	Amount of Water Allotted
Answers will vary.	Answers will vary.
Answers will vary.	Answers will vary.
Answers will vary.	Answers will vary.
Answers will vary.	Answers will vary.
Answers will vary.	Answers will vary.
Answers will vary.	Answers will vary.
Answers will vary.	Answers will vary.
Answers will vary.	Answers will vary.
Answers will vary.	Answers will vary.
Total:	Answers will vary.

Name: _____

2. How did your group prioritize water needs among the different roles?

Answers will vary.

3. Were there any disagreements about how to allocate the water? How did your group resolve them?

Answers will vary.

4. What were the most challenging decisions in allocating water?

Answers will vary.

5. If there was more water available, would you have distributed it differently?

Answers will vary.

6. What was the impact of not allocating enough water to certain sectors (e.g., farms, schools, factories)?

Answers will vary.

7. What is one thing you learned today about the balance between water conservation and maintaining essential services?

Answers will vary.

Name: _____

Appendix 1: Where Does Our Water Come From? Understanding Water Sources

When you turn on the faucet or water your garden, have you ever stopped to wonder where that water comes from? Water is one of our most important natural resources, and it comes from a variety of sources. Understanding these sources helps us make smart decisions about water use and conservation. Let's explore the key types of water sources and some important terms you should know.



Nature's Starting Point

All water sources begin with precipitation. This is any form of water that falls from the sky, including rain, snow, sleet or hail. When precipitation reaches the ground, it can follow several different paths — it might soak into the soil, run into rivers and lakes, evaporate back into the sky or be collected by people for later use.

Lakes, Rivers and Streams

Surface water is the water you can see above ground. This includes all lakes, rivers, ponds and streams. Many communities use surface water as their primary source for drinking water, irrigation and recreation. Because it's exposed, surface water is vulnerable to pollution from chemicals, trash and runoff, which is why it needs to be carefully managed and treated.

Hidden Water Below Us

Not all water stays above ground. Some of it soaks deep into the soil and becomes groundwater. This water fills tiny spaces between rocks and soil underground. Large underground layers that store this water are called aquifers. Aquifers are like natural storage tanks, and many wells draw water from them. In fact, about 40% of drinking water in the U.S. comes from groundwater sources (U.S. Geological Survey).

Stored for Later

A reservoir is a man-made or natural lake where water is stored for future use. Dams are often built to hold back rivers and create reservoirs. These stored water bodies help supply water during dry periods, provide flood control and generate hydroelectric power. Cities and towns often rely on reservoirs as a backup source of clean water, especially when facing a drought — a prolonged period with unusually dry weather, characterized by a lack of precipitation and resulting in a water shortage.

A Free and Natural Option

Rainwater collection is a method of capturing precipitation directly from rooftops or other surfaces and storing it for later use. Collected rainwater can be used for watering gardens, washing cars or even flushing toilets. In some places, rainwater can also be filtered and used for drinking. It's a simple and sustainable way to reduce water demand on other sources.

Reuse, Don't Waste

Grey water is gently used water from sinks, showers, bathtubs and washing machines. It's not clean enough to drink, but it can be reused for things like landscape irrigation or toilet flushing. Using grey water reduces the amount of freshwater we use and helps conserve this precious resource. However, using grey water requires proper systems to keep it safe and effective, and many municipalities have laws or regulations guiding its collection, storage and use.

Why It Matters

Water is essential for life, and understanding where it comes from helps us take better care of it. Whether it's falling from the sky, flowing across the land or stored underground, every drop counts. By learning how to conserve water and use it wisely, you can be part of the solution to protect our water future.

Sources:

U.S. Geological Survey (USGS). "Groundwater Information." <https://www.usgs.gov/special-topics/water-science-school/science/groundwater>

Environmental Protection Agency (EPA). "Water Topics." <https://www.epa.gov/environmental-topics/water-topics>

National Geographic. "Freshwater Resources." <https://education.nationalgeographic.org/resource/freshwater-resources/>

Alliance for Water Efficiency. "Greywater Reuse." <https://www.allianceforwaterefficiency.org/resources/topic/greywater>

Appendix 2: Water User Role Cards

Role 1: Farmer (Crop Irrigation)

- **Water Needs:** 30,000 gallons of water per day
- **Responsibilities:** You manage a large-scale crop farm, growing crops such as corn, soybeans or wheat. Irrigation is crucial for maintaining crop health, especially during dry periods. Without sufficient water, your crops may wither, leading to crop loss and financial hardship. While irrigation systems like center pivot or drip irrigation can help conserve water, they still require large amounts of water to operate effectively.
- **Negotiation Focus:**
 - You need enough water to irrigate your crops and maintain healthy soil.
 - During a water shortage, you'll need to argue for as much water as possible to avoid crop failure.
 - You may be willing to cut back on water use if other sectors (e.g., residential or industrial) are in need, but you're concerned about the potential impact on your farm's productivity and future food supply.
- **Challenges:**
 - Crops are highly dependent on a consistent water supply, especially during peak growing seasons.
 - Reducing irrigation may result in a significant loss of crops, impacting local and regional food supplies.
 - Water shortages can affect both crop yields and long-term soil health.

Role 2: Livestock Producer

- **Water Needs:** 15,000 gallons of water per day
- **Responsibilities:** You manage a local livestock operation, which may include cattle, pigs, chickens or other animals. Animals need water for drinking, cooling and maintaining overall health. Water is also used in cleaning the animals' living spaces and managing their waste. If animals do not receive adequate water, they may become dehydrated, sick or even die, causing significant financial losses.
- **Negotiation Focus:**
 - You need water to keep your animals healthy and hydrated.
 - You may be willing to cut back on water usage in areas that don't directly affect animal health (like, cleaning or cooling) but cannot compromise on basic hydration needs.
 - You may need to advocate for specific water-saving methods such as rainwater harvesting or recycling water for cleaning in order to meet all your needs.
- **Challenges:**
 - Lack of water can lead to sick or dying livestock.
 - Water is needed for multiple purposes in your operation, making it challenging to reduce water use without negatively affecting the animals' health and well-being.
 - The balance between reducing water use and maintaining animal health is critical for you.

Role 3: Homeowner

- **Water Needs:** 2,000 gallons of water per day
- **Responsibilities:** You live in a residential area and use water for daily activities such as drinking, cooking, cleaning, bathing and maintaining your backyard garden. Water is also essential for washing clothes and running appliances. In a water shortage, reducing personal consumption becomes necessary, but access to clean water for your basic needs must be prioritized.
- **Negotiation Focus:**
 - You need water for essential household needs, including hygiene and food preparation.
 - You might be willing to reduce nonessential uses (like gardening, excessive water use in showers, etc.) to ensure everyone's basic needs are met.
 - You could also suggest using water-efficient appliances or technologies in the home, such as low-flow faucets or drought-resistant landscaping.
- **Challenges:**
 - You may need to make significant lifestyle changes (like reducing shower times or laundry loads) in order to conserve water.
 - The balance between conserving water and maintaining a comfortable, functional home can be difficult to achieve.

Name: _____

Role 4: Water Utility Worker

- **Water Needs:** 50,000 gallons of water per day (for the entire community)
- **Responsibilities:** You manage the distribution of water throughout the community, ensuring that all sectors—homes, farms, schools and businesses—have access to the water they need. Your responsibility is to make sure the water is allocated efficiently and fairly. You also monitor the infrastructure for leaks and waste, which can be a significant source of water loss.
- **Negotiation Focus:**
 - You are responsible for ensuring that water is evenly distributed and that no sector uses more than their fair share.
 - You may need to advocate for water-saving technologies in the community's infrastructure to reduce waste.
 - You may need to prioritize water for homes and hospitals while finding ways to reduce industrial and agricultural water needs.
- **Challenges:**
 - Managing and distributing water equitably can be challenging when resources are scarce.
 - You must balance competing demands from residents, businesses and agriculture.
 - Water infrastructure (pipes, storage tanks, etc.) may not be able to handle severe shortages, making system failure a concern.

Role 5: School

- **Water Needs:** 5,000 gallons of water per day
- **Responsibilities:** The local school requires water for students' hygiene, food preparation and general cleaning. A school with a large student body needs a steady supply of water for bathrooms, cafeterias and cleaning purposes. If water is not available, the school may need to close temporarily, which can have a major impact on the students' education.
- **Negotiation Focus:**
 - You need water to keep the school running, as it's essential for both sanitation and food service.
 - You may have some flexibility in terms of reducing water usage in areas like washing dishes or cleaning, but you cannot completely eliminate water for hygiene or food preparation.
 - You might consider implementing water-saving measures like water-efficient toilets or sinks in school bathrooms.
- **Challenges:**
 - The health and well-being of students must be a priority, and that requires a consistent water supply.
 - Reducing water may lead to a decrease in cleanliness and overall student comfort.
 - Finding ways to conserve water while keeping the school operational can be difficult.

Role 6: Industrial Factory

- **Water Needs:** 10,000 gallons of water per day
- **Responsibilities:** The factory uses water for industrial processes such as cooling machines, cleaning and even cooling down materials in some manufacturing processes. While not as critical as water for crops or livestock, reducing factory water usage can lead to production delays or stoppages, which could have economic consequences and impact the jobs in the community.
- **Negotiation Focus:**
 - You need water to maintain your factory's productivity and keep operations running smoothly.
 - You may be able to implement temporary water-saving measures, such as recycling water used in the factory, but a complete shutdown of water could lead to financial losses and unemployment.
 - You can argue that conserving water in the factory will help avoid widespread economic disruptions.
- **Challenges:**
 - The factory must balance water use with production needs. Cutting back too much can impact product output and worker safety.
 - The factory might need to implement technology like closed-loop cooling systems or other water-recycling methods to reduce its reliance on fresh water.

Name: _____

Role 7: Power Station

- **Water Needs:** 20,000 gallons of water per day
- **Responsibilities:** The power station uses water primarily for cooling systems to keep turbines and other machinery from overheating. Cooling requires large amounts of water, and without it, the power station could experience equipment failure, leading to power outages. Power is essential for homes, schools, hospitals and industries, making electricity production a critical service during a water shortage.
- **Negotiation Focus:**
 - You need enough water to keep the cooling system running and avoid power outages.
 - You may be able to reduce energy production temporarily, but this could affect the community's access to electricity, so finding a balance is crucial.
 - You may suggest alternative cooling technologies or temporary reductions in energy output to help conserve water.
- **Challenges:**
 - Water is critical for cooling and power production, but the community may argue that other sectors, like agriculture or homes, need water more urgently.
 - Maintaining a consistent water supply is key to keeping electricity running without disruptions, but this could lead to conflicts with other groups' water needs.