Albuquerque Bernalillo County
Water Utility Authority

RIO (River Is Ours) Field Trip Classroom Unit

Albuquerque Water Use (5E Plan)

the River Is Ours

Grade Level: 4th	Subject: Reading Informational Test, Math, Writing
Lesson Title: *Albuquerque Water Use*	Lesson Length: Two hours +

The Teaching Process

Lesson Overview:
Students learn about ways we use and conserve water in Albuquerque. Students manipulate data by making and reading graphs. Besides water use in individual homes, students will learn about how Albuquerque uses water to improve our community.

Lesson Objectives:

- Students read informational text to learn about where we use water today.
- Students read graphs and diagrams to increase understanding of surface and ground water resources.
- Students include information from text, graphs, and math manipulation to write a paragraph persuading us to save water.

Standards addressed

Common Core

CCSS RI 4.1 Refer to details and examples to explain what the text says and infers. (2F, 4F, 5S, 6S, 7S, 8F)
CCSS RI 4.3 Explain events from the text including what happened and why. (Units 2F, 7F)
CCSS RI 4.4 Determine meaning of domain-specific words or phrases. (2F, 4S, 5F, 7F)
CCSS RI 4.5 Describe chronology, cause/effect, problem/solution. (5F, 8S)
CCSS RI 4.7 Interpret info on charts and graphs and explain how it contributes to understanding of the text. (4F, 5S. 7F, 8F 10F)
CCSS RI 4.9 Explain how author uses reasons and evidence to support points. (5F, 6F)
CCSS RI 4.10 Read and comprehend 4th grade informational texts. (all units, R)

CCSSM 4.OA3 Solve multistep word problems with whole numbers.
CCSSM 4.NBT.2 Read and write multi-digit whole numbers using <, >, and = to compare.
CCSSM 4.ND2 Use four operations to solve word problems involving volumes.

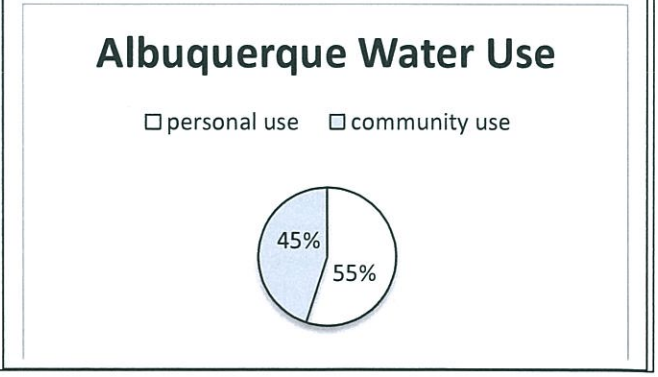
List of Materials

- Text of "Water Use in Albuquerque" (Persuasive writing assignment is at the end of the text.)
- Water Math Worksheet
- Water Math Worksheet answers

Instructional Sequence

Phase One: Engage the Learner Day 1

Each person who lives in Albuquerque uses about 75 gallons of water a day. Some use more water. Some use less water. In summer, most of us more water because we water our outdoor plants. In addition, we use water as a community. Although we are not the person turning on the sprinklers for the grass and trees in our parks, we can all enjoy the beauty of parks and the cooling effect they have on our neighborhoods and towns. When we add in all the community water use, we each use about 135 gallons of water each day. (Explain how averages work if students are interested.)



Draw a big pie chart on the board showing 45% community, 55% home. Explain that out of 100 gallons of water used in Albuquerque, 55 are used in homes, and 45 are used for the community.

- Use Think/Pair/Share technique to get ideas about all the ways they use water at home, indoors and outdoors. Write their ideas in the personal water use slice of the pie chart.
- Explain that community water use includes all the ways our city uses water to provide services and jobs to people in the town. Ask them to think about how water is used in hospitals, hotels, the zoo, parks, pools, shopping centers, etc. Use Think/Pair/Share technique to come up with ways our community uses water. Write their responses in the slice of the pie chart for community use.

Teacher draws pie chart. Teacher sets up students in pairs or groups to come up with ideas. Teacher writes students' ideas in the corresponding slice of the pie chart.	Students share their ideas about ways they use water in their homes and ways that the community uses water for their benefit.

Phase Two: Explore the Concept

Show students the diagram that illustrates how much water Albuquerque thought was in our aquifer vs how much water is really in our aquifer. Today Albuquerque's water comes from the aquifer AND river water that was brought in from the San Juan river (this is explained in the RIO Field Trip). Still, we do not have any water to waste.

Look at the pie chart of water uses. Ask students to come up and circle something that they feel is an essential water uses for our community. Why? Ask them to share a personal story to explain how this impacted them or someone they know.

Are their ways they can save water at home in their personal lives? How much water do they think they could they save in one year by making one simple change?

Teacher poses question about essential water uses. Teacher asks students to circle essential uses and makes sure that students explain why that is important.	Students think about how water is essential to our community. They circle essential services and share experiences they've had when they used that community water resource (played in soccer games, gone to the hospital for an emergency or for the birth of a sibling, etc.)

Phase Three: Explain the concept and define terms

In a group or individually, students read the informational text about water use in Albuquerque. After reading, ask students why they think water use used to be so high in Albuquerque. Ask students to interpret the information from the graphs. How have we reduced our water use since 1995? What actions have been effective?

Teacher helps students read the informational text when necessary. Teacher asks questions about what happened to Albuquerque Water Use and why it happened.	Students read the text and graphs. They make connections between water conservation programs and overall water use. Students make sure they understand the meaning of domain-specific words or phrases (in bold type).

Phase Four: Elaborate the Concept

Students complete the math worksheet that helps them answer the question, "How can one small change in our water use make a big difference?" Make sure that students understand the word problems and what is being asked. What information will they need to solve the question? What information are they trying to find? What is the correct label for the answer of the word problem? These can be done individually or in small groups.

Teacher hands out worksheets and helps students as they work on the problems. Make sure students understand the problem, have all the information they need, and understand what label the answer will have. Teacher checks math to ensure that students have valid numbers for the informational writing	Students complete math word problems. They ask for help when necessary.

Phase Five: Evaluate Students' Understanding of Concept Day 2	
Ask students to write a one-minute informational public service announcement (psa) that tries to persuade residents to take one action to save water. Why is it important to save water? How will this one action help? Students must include three facts from the informational text and/or from their math worksheet in their piece. Ask them to read their psa aloud to the class in their best radio or TV announcer voice.	
Teacher makes sure students include three facts in their informational piece. Teacher evaluates using simple rubric, e.g. 2 pts for explaining why we should save water, 2 pts for explaining one simple water-saving tip, 2 pts for explaining how great the water savings would be, 1 pt for each fact (3 pts total), and 1 pt for presentation. This would be a total of 10 pts.	Students write and deliver a one-minute public service announcement that includes at least 3 facts and details one simple way to save water.