



“Take Action!”

Objective: Students will evaluate real-life situations and collaborate to find solutions to water management issues.

Grade Level

4th-7th

Time Frame

1-hour

Learning Objectives	Vocabulary	Science TEKS	Materials
Students will: <ul style="list-style-type: none"> understand different water management issues in El Paso Generate solutions to serve a community 	<ul style="list-style-type: none"> <i>Water quality</i> <i>Water management</i> 	4.1B; 4.2 A; 4.3 A; 4.5 A; 4.7 A, B, C; 4.8 B 5.1 A, B; 5.2 B,D,F; 5.3 A; 5.5 C, D; 5.8 B; 5.9 C 6.1 A, B; 6.2 A, B, C; 6.3 A, B, C, D; 6.9 B, 7.1 A, B; 7.2 B, E; 7.3 A, D; 7.4 A; 7.8 A, B, C	<ul style="list-style-type: none"> 8 Problem Cards

Background

Split students into eight discussion groups consisting of no more than four students. Each student will have a task:

- Recorder- records discussion
- Supervisor- encourages participation from every member
- Presenter- presents the outcome of the group to the class
- Timer- ensures all participants are on task on a timely manner

Engage

- Ask the students if they are for or against raising the price of water for better *water quality*.
 - Tell students to discuss and debate the issue in their group and decide on a yes or no vote.

Explore

- Give each group a “Problem Card”.
 - Each group will rank the actions from BEST to WORST outcome. Encourage plenty of on-topic discussion to support rankings.

Explain

- Each group will present their problem, options and rankings.
 - Groups must have supportive evidence for their rankings.
 - Probe the groups for more information, including key vocabulary words and misconceptions.

Elaborate

4. Groups will identify three *water management* issues and action plans in their school or community that may affect future generations in El Paso.
 - a. They must include pros and cons for each action.

Evaluate

5. Students will write a paragraph on *water management* issues specifically in El Paso.
 - a. How should El Paso Water address tough *water management* issues?

Problem Cards

<p><u>PROBLEM #1</u></p> <p>You are the Mayor of El Paso. A developer wants to buy some land and build houses at the bottom of the Franklin Mountains in an area considered a flood zone. These houses will have an extraordinary view of the Upper Valley and will be located in an area that will bring many prosperous people to the area. This means better stores and restaurants for everyone in El Paso. You will make the final decision on whether or not the area is developed.</p>	<p><u>PROBLEM #2</u></p> <p>You and your friends are out for a walk at the park, and you observe a truck dumping a 55-gallon drum of a dark liquid into a deep hole in the dirt. What does your group of friends do?</p>
<p><u>PROBLEM #3</u></p> <p>You finally got a job. Your mom says that it is time for you to start helping with the utility bills. She explains that you are in charge of paying the water bill. Water conservation has suddenly become very important to you. However, although you have installed low-flow faucets on your showerheads and sinks, your family still insists on taking long showers. What are you going to do?</p>	<p><u>PROBLEM #4</u></p> <p>You have changed the oil in your car. You know the hazards of oil seeping into groundwater, yet you are in a hurry to get in line for a big concert. How do you discard the used oil?</p>
<p><u>PROBLEM #5</u></p> <p>A group at your school is trying to raise enough money to take a trip to Orlando, FL. The fastest way to raise money on a Saturday would be by having a carwash at the local fast food restaurant. El Paso currently has restrictions on this type of activity. However, you have been informed that nobody has been reprimanded before for using this restaurant for car wash fundraisers. What will you group decide to do?</p>	<p><u>PROBLEM #6</u></p> <p>Your friends have spread a large piece of plastic on a hill and are spraying it with a hose. This creates a great water slide. However, sliding repeatedly kills the vegetation underneath the tarp. Large amounts of water are being wasted and causing runoff to the nearby street. El Paso has experienced a water shortage. You have been invited to take a dive down the hill. What do you do?</p>
<p><u>PROBLEM #7</u></p> <p>Torchlight Energy Resources plans to drill oil wells 30 miles east of El Paso. The company plans to extract the oil through hydraulic fracking. Hydraulic fracking uses a great deal of water mixed with chemicals and injected into the ground at high pressure to get the oil from the ground. There are economic and environmental pros and cons of this energy project. Where should the El Paso Water Utility stand on the project?</p>	<p><u>PROBLEM #8</u></p> <p>Climate change is affecting water resources mostly in the arid west. Increasing temperatures lead to decreasing overall snowpack. Snowpack is the major source of water for rivers in the west, especially the Colorado River and Rio Grande. As drought and climate change become more persistent in the region water managers must respond appropriately to insure a future water supply. What type of conservation measures would you take to insure a sustainable water supply?</p>

Figure 1: Problem cards