



Grade Level:
8th Grade

Subject:
Science

Exhibit:
#10 Water Management

**Approximate
Time Frame:**
1 hour

Materials:
Index cards (Problem
Cards)



Lesson Plan - Take Action!

Science TEKS:

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- 8.3 a The student uses critical thinking and scientific problem solving to make informed decisions,
- 8.3 b Draw inferences based on data [related to promotional materials]
- 8.3 c Represent the natural world using models and identify their limitations
- 8.14 The student knows that natural events and human activity can alter Earth systems
- 8.14 b Analyze how natural or human events may have contributed to the extinction of some species
- 8.14 c Describe how human activities have modified water, soil and air quality

Related TEKS: Social Studies, Government, Environmental Science, Ecology

Vocabulary of Instruction:

disposal	groundwater
contamination	point source pollution
nonpoint source pollution	renewable resources
non-renewable resources	

Advanced Preparation:

Students will be split up into discussion groups consisting of no more than four participants.

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 (makes sure that all participants are on task on a timely manner)

Instructional Procedure (5 E)

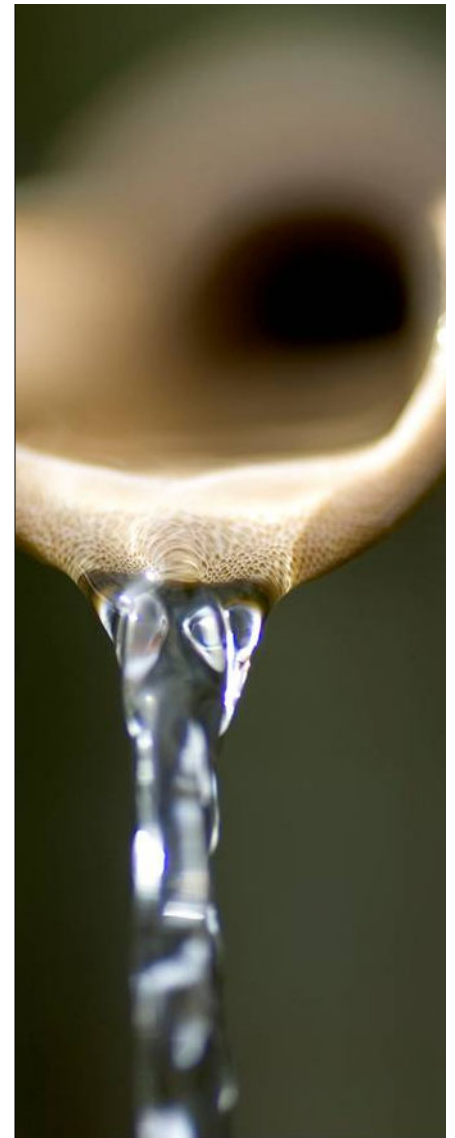
Engage: The teacher can begin the lesson with a bit of debate. Ask the groups to discuss whether they are for or against raising the cost of water in El Paso in order to receive cleaner water.

Explore: Pass out a "problem card" per group. The students will rank the actions taken from BEST to WORST. Teacher should encourage plenty of on-topic, small group, discussion at this stage of the lesson.

Explain: The students will present their problem card and the action that they have decided to take. The teacher will probe the group for more information that may include some key vocabulary and misconceptions of the vocabulary.

Elaborate/Extend: The students will identify water management issues in their school or community that may affect them or their future El Paso generations. The students must cite specific courses of action as well as pros and cons that may accompany the actions taken.

Evaluate: (*Journal or loose leaf paper*) Students will work independently at this final stage of the lesson. Students will be asked to reflect on water management issues in El Paso and/or their community. Ask the students to provide Pros and cons associated with dealing with their water management issue.



WATER MANAGEMENT PROBLEM CARDS

Each Group Gets
One Problem Card

PROBLEM #1

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 that is 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.

OPTIONS:

1. Tell the builder that no building will be allowed.
2. Let the developer build houses in the flood zone.
3. Tell the developer to elevate the houses in order to avoid flood damage.
4. Tell the developer to choose another area in El Paso that is not in a flood zone.
5. Other?

PROBLEM #2

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 should you do?

OPTIONS:

1. Ask the men in the truck what's going on.
2. Go home and call the police.
3. Wait until the truck leaves then investigate the liquid by touching and smelling it.
4. Take down the license plate number and report it to the fire department.
5. Other?

PROBLEM #3

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?

OPTIONS:

1. Hold a family meeting and ask all of the family members to reduce their shower time.
2. Tell the family that they will reduce their shower time to five minutes or else you will shut the water off.
3. Ask family not to shower everyday.
4. Nothing. Your family has the right to waste all of the water that they want to.

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PROBLEM #4

You've 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?

OPTIONS:

1. Hide it in the back of the garage.
2. Put it in your trashcan for disposal in the City/ County landfill.
3. Burn it.
4. Take it to an approved oil disposal facility in your area.
5. Other?

PROBLEM #5

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 fund raisers.

OPTIONS:

1. Have the car wash and see what happens.
2. Suggest to the group that you find an alternative fundraiser that may take a little longer than just one day.
3. Have the car wash fundraiser at a car wash center that will take a part of your earnings.
4. Have the car wash on the lawn of your school.
5. Other?

PROBLEM #6

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?

OPTIONS:

1. Report the game to the local water authorities and have them cut off the local water supply.
2. Join in the fun.
3. Convince your friends to play something else, like basketball, soccer etc.
4. Join in for just a short while then encourage your friends to stop with you.
5. Refuse to join in and go home.
6. Lecture your friends on reasons not to waste water.
7. Other?