

Water Resources

Pass The Jug

Adapted from Project WET, the Watercourse and the Council for Environmental Education, 1995

Introduction

In this activity, students will role-play different water users as they collectively try to decide how to allocate a limited quantity of water. This simulation also includes the concept of water rights as formed in the western part of the United States, where the "first in time is first in right."

Materials:

Numbered tickets- to represent water right priority age
Gallon jug(s) of water- to represent the shared resource
Cups- for allocation of the shared resource
Roles and description slips (For how much water they get)
Food coloring- to represent pollution (Optional)
Rags- for spills

Instructions:

1. As students arrive, each will be given a ticket. Try to give out the numbers in a way that the lowest number is given to the first person to enter the room and continuing sequentially.
2. Explain to students that they will be allocating the water that is in the jug based on water rights and later on collective decision making.
3. Each student also gets a cup. In this cup will go their allocated water.
4. Hand out to the students a role in order of their water rights (their numbers from lowest to highest). This process represents the concept that the first to arrive are given priority for the use of the water. Give the students time to read their roles and the amount of water that they are allocated and to ask any questions.
5. Have each student come to the instructor to receive their water right allocation, starting with the person that has the oldest water rights (the lowest number) then to the next water right holder (the next lower number), etc. The water should run out before all get their share – if it doesn't, re-run the activity with less water simulating a "drought."

6. Ask if any student feels that they don't need their full allocation or if they don't think they have enough water. Allow students to discuss the best allocation of water rights. Discuss who might want to share, who should get more and who could receive less.

Discussion:

- Did everyone get the water that they feel they needed? Why or why not?
- What types of water users are not represented by the group? What should be done for them?
- What would happen if there was a severe drought? How would that change the way that the group might allocate the water rights?
- What are other ways that water rights could be distributed if the water rights laws weren't based on "first in time first in right?"
- How is this a simulation of a complex system?

Expanding the Game:

There are many variations of this game to play.

- After receiving water, each student receives a drop of red food coloring in their cup representing pollution and use. Students then add a bit of their dyed water back into the jug. This may stimulate an interesting discussion as water progressively gets darker and darker as it is allocated.
- A simple version of this game can be played during snacktime, where whatever drink you chose comes from a similar jug to the one used in this activity. Simply let students pour for themselves. A variation of this activity can be played with water rights numbered tickets – have students come up with the fairest allocation of drink.

Water Rights / Allocation

<p>#1: You are an alfalfa farmer from Alcalde and a descendent of the first settlers in New Mexico. Your field is irrigated by the acequia network and needs a good amount of water to keep everything green and healthy. If you don't get enough water, your alfalfa will wither and you will have to sell your land.</p>	<p>1 Cup</p>
<p>#2: You are the manager of the Piñon Hills Golf Course in Farmington. Your responsibility is to keep the course green and healthy in order to maintain its award winning playing field. If you don't do your job, golfers will be upset and the city will lose money.</p>	<p>2 Cups</p>
<p>#3: You are the plant manager for a microchip manufacturer in Albuquerque. Your company produces processors that are used in computers throughout the world. You need water to keep the production lines cool. If you don't get enough water, your plant will shut down.</p>	<p>1 Cup</p>
<p>#4: You are a fourth-generation chile farmer from Hatch and need water to keep your crop growing. You have a large amount of acreage to water, and it's been a hot and dry summer. If you don't get enough water, your chile crop will wither and die and many people will have to go without their chile fix.</p>	<p>3 Cups</p>
<p>#5: You are the manager of a gold mine in Silver City. Gold prices are at an all-time high and production demand is increasing. You use water to flush out gold in sluice channels. If you don't get enough water, the miners who are your employees and depend on your company for income will have to be fired.</p>	<p>1 Cup</p>
<p>#6: You are a third generation cattle rancher from Portales. It has been a dry year and the stock tanks and your cattle drink from are always drying up. If you don't get enough water your cattle will die and you'll need to move away from New Mexico.</p>	<p>2 Cups</p>
<p>#7: You are a tourist from Germany visiting New Mexico. You are at Elephant Butte Lake to enjoy jet skiing and fun on the water. If you don't get enough water you will go home and tell bad stories about how New Mexico doesn't have any water, and the tourist industry will suffer.</p>	<p>1 Cup</p>
<p>#9: You are a land developer and homebuilder in Rio Rancho. Thanks to your business, Rio Rancho is one of the fastest growing cities in the country. If you don't get enough water, your business will shut down and your employees that depend on you for their income will be fired.</p>	<p>3 Cups</p>

<p>#10: You are a member of the Kewa Pueblo south of Santa Fe. Your family has lived and grown crops on the land for a long time. You have a nice crop this year and you'd like to sell locally it so you don't have to commute all the way to Santa Fe to work. If you don't get enough water, your crop will die and you'll have to make the commute every day.</p>	<p>2 Cups</p>
<p>#11: You are an avid golfer from New York with a home in Edgewood. You retired to New Mexico specifically so you could play golf every day. If you don't get enough water, the golf courses will shut down and you won't be very happy.</p>	<p>1 Cup</p>
<p>#12: You are a river raft guide in Taos. A lot of your income depends on tourists coming every spring to run the rapids of the Rio Grande. If you don't get enough water, you'll have to move away and leave all of your friends behind.</p>	<p>1 Cup</p>
<p>#13: You are a third generation pecan grower in Mesilla. Your pecan trees need a lot of water and this year has been hot and dry. If you don't get enough water, your pecan trees won't produce and you'll have to find another job for the season.</p>	<p>2 Cups</p>
<p>#14: You are the mayor of Santa Fe. It's been a drought year and you have already declared a water emergency, and people are prohibited water their lawns or washing their cars. If you don't get enough water, your constituents will not elect you to serve a second term and you may be ran out of town!</p>	<p>3 Cups</p>
<p>#15: You are the Bosque del Apache Wildlife Refuge. Sandhill cranes and Arctic geese migrate to you every fall to stay for the winter. If you don't get enough water, the cranes and geese will not have any place to go and may go extinct.</p>	<p>1 Cup</p>
<p>#16: You are a Rio Grande Silvery Minnow. You spend your life swimming around in the muddy waters of the Rio Grande. If you do not get enough water, you will die and your species will go extinct.</p>	<p>2 Cups</p>

Water Rights Priority

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23	24	25