



Theme: Sustainability (Grades 9-12)

Pre-Visit Activity #2 Water Use Inventory

Overview:

Your school has a field trip planned at the Springs Preserve. The Springs Preserve is called the birthplace of Las Vegas and is registered as a Historical Site. Travelers and early settlers came to the site to use water, eventually establishing the town site of Las Vegas in 1905. In 1962, due to over-usage, all of the water was taken from the land. While on your field trip you will learn more about the Springs Preserve, including how the land has changed over time. You will discuss the importance of conserving natural resources in the desert, such as water, and examine ways to live sustainability. In order to give you a better idea of how much water you consume, please do the following activity.

Activity:

Part I: Water Bill Calculation

1. Bring a copy of your water bill to class. The bill will give both the amount of water used and the cost.

2. What month and year is the bill for?

3. On your water bill, find the amount of water used for the month:
_____ (include units)

4. Calculate your average cost of water per gallon and per 1000 gallons. Show calculations:

Average cost of water = _____

Water prices vary widely around the country, but usually fall in a range of \$1-\$4 per 1000 gallons.

Part II: Estimated Water Use

In order to gain a better understanding of where you use the most water in your home, there is a chart below to help you calculate usage. These figures are estimates. There is a tremendous amount of variation. For example, if you have a water-efficient showerhead the water flow will be about half the estimate below. If you have a water-efficient toilet the water used per flush will be as low as 1.5-2 gallons per flush. The amount of water used for tooth brushing, shaving, hand and face washing, and dishwashing will vary significantly based on the time spent and the faucet setting. The amount of water used in your yard will vary depending on the size of the area in need of water. It is important to understand where the water is used, if you want to conserve more!

Use	Conditions	Estimated gallons
Shower	per minute	4-10
Fill bathtub	per use	30-50
Toilet Flushing	per use (flush)	5
Tooth brushing	per minute (letting water run)	3
Washing hands and face	per minute (letting water run)	3
Shaving	per minute (letting water run)	3
Cooking	per meal	3
Washing Machine	depends on setting	20-50
Dish Washing	by hand (per minute)	3
Dish Washing	w/machine (depends on setting)	15-30
Water Lawn	per minute (depends on area)	10-20
Lawn Sprinklers	per minute (depends on area)	5-20
Washing Car	per minute	10
Wash down driveway w/hose	per minute	10
Fill swimming pool	per use	20,000-30,000

Part III: Personal Water Use Inventory

For shared activities like washing clothes, calculate your share of the water used. For example, if there are 4 people in your house and the washing machine is estimated to use 40 gallons per load, your share is $40/4 = 10$ gallons.

Use the data in the first table to fill in the “**Estimated gallons per use or unit of time,**” but change the figures in that column if you have more accurate data about your personal water use.

Use	Number of uses or time used per day	Estimated gallons per use or unit of time	Estimated gallons used per day	Estimated gallons used per week	Cost per gallon	Estimated cost per week	Estimated cost per year
<i>Shower</i>							
<i>Fill bathtub</i>							
<i>Toilet Flushing</i>							
<i>Tooth brushing</i>							
<i>Washing hands and face</i>							
<i>Shaving</i>							
<i>Cooking</i>							
<i>Washing Machine</i>							
<i>Dish Washing</i>							
<i>Water Lawn</i>							
<i>Lawn Sprinklers</i>							
<i>Wash Car</i>							
<i>Wash down driveway w/hose</i>							
<i>Fill swimming pool</i>							
<i>Other:</i>							

Discussion Questions:

Based on your results, answer the following questions.

1. Does your household use more water than what you originally thought? Yes or no, and why?
2. Where does your household use the most water?
3. Where do you individually use the most water?
4. If you were to cut water use in three areas, where would you do so and how? Calculate the percentage of water difference that you would save in each of the categories.
5. Name another way that you can conserve water other than the areas listed above.