

23.1

“Water” We Going to Do?

Background Information

Water is a precious resource. Without water, life itself would be impossible. All plants and animals need water. Most of us, however, take an abundant supply of clean, fresh water for granted.

While most of us are aware of the water that we use in our homes, the amount of water used by industry is enormous. Table 23-A shows the amount of water used to produce various products in the United States. Table 23-B shows the percentage of water used in various sectors in the United States. Some of the water “used” in Table 23-B is “consumed,” meaning that it is not returned to the surface or underground water systems. Some of it is returned to the water systems.

Table 23-A. Gallons of Water Typically Used to Produce Various Products in the United States.

1 automobile	100,000	1 Sunday newspaper	280
1 pound of cotton	2,000	1 gallon of gasoline	70
1 pound of aluminum	1,000	1 egg	40
1 pound of grain-fed beef	800	1 pound of steel	25
1 pound of rice	560	Refine 1 gallon of crude oil	10

Table 23-B. U.S. Water Use by Sector.

Agriculture	33–42%
Industry, including electricity generation	47–54%
Urban and Residential	10–12%

(Note: A range is given because different sources give different estimates.)

It has been estimated that between 30 and 50 percent of the water used in the United States is wasted. Many water experts believe that conservation is our cheapest, quickest, and best source of water in the near future.

As our demand for water increases due to population increases and additional demand for various products, our water problems will increase. Even many areas that currently seem to have abundant water may well experience water shortages in the coming decades. Droughts are always a possibility, and even without droughts, there is not an infinite amount of water available.

Because most of the water used in the United States is not used in our homes, it may seem that we can do nothing about its use. We must keep in mind that industries use the water to produce the products we purchase. If we don't demand a new car every two years, if we recycle as much as possible, and if we don't waste food and other materials, water will be saved.

We can also encourage conservation of water by industries by legislative action. Laws can be passed to require water conservation equipment and methods. Federal and state subsidies that encourage waste of water can be eliminated or reduced.

Learning where we use water in our homes can help us learn where we can best conserve water. Table 23-C shows the percentage of water used for various activities in a typical home in the United States.

Table 23-C. Domestic Uses of Water in the United States.

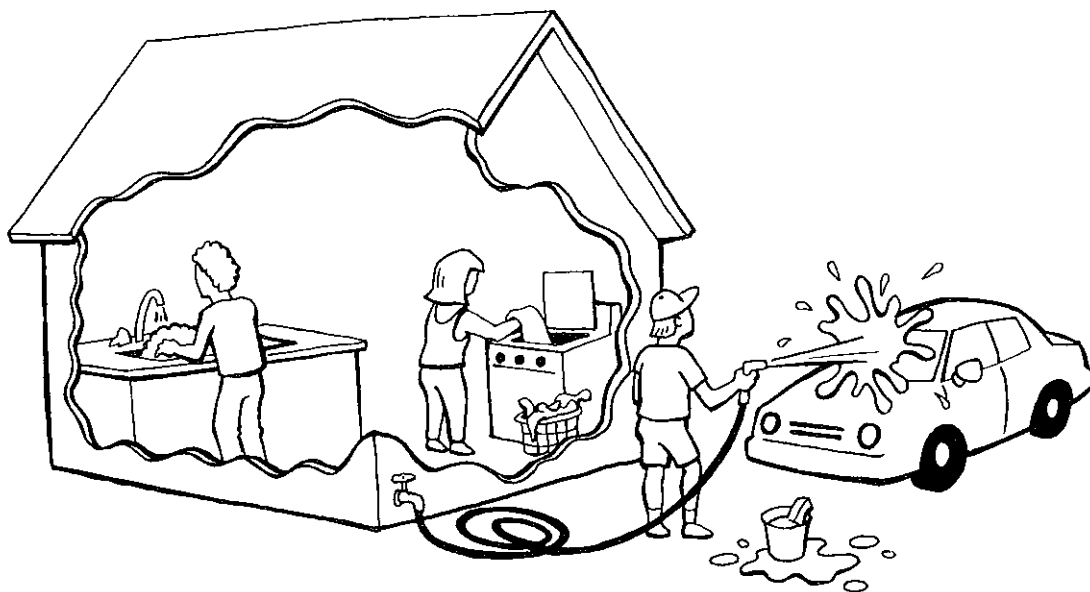
Toilet flushing	40%	Laundry	4%
Washing and bathing	37%	Household cleaning	3%
Kitchen use	7%	Garden	3%
Drinking	5%	Cleaning car	1%

Notice that reducing the amount of water used in toilet flushing by only 10 percent would save as much water as is used for laundry and save almost as much as is used for drinking. Using a water-saving toilet cuts water used for flushing from about six gallons per flush to about 1.5 gallons—a savings of 75 percent!

Water pollution is a problem even in communities that have adequate supplies of water. This makes the wise use of the available clean, fresh water even more important.

Aside from concerns about shortages of water for human consumption, we should be concerned about water use because of the impact it has on the environment. When reservoirs are built, valleys are flooded and downstream rivers are changed. **Channelizing** of streams destroys the **riparian** communities along their banks. Diverting water from one area to another via canals or pipes damages the environment from which the water was taken as well as the areas through which the canals and pipes pass.

Conserving water makes sense—environmentally, financially, and ethically.



23.2

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Personal Water Use

Predicted Water Use

Your class has listed various ways that water is used in the home. Before actually recording how much water you use in a day and a week, record how much you think you use.

I think I use about _____ gallons per day and _____ gallons per week.

Actual Water Use

For the next twenty-four hours, keep track of the actual ways that you use water and the number of times you use water each way. You can use the estimated amounts per use or you can actually measure the amount of water used.

Water Use	Times Per Day	Amount Used		Total Used	
		Estimated Gallons*	Measured Gallons	Per Day	Per Week
Bathing		30 ⁽¹⁾			
Showering		50 ⁽²⁾			
Flushing toilet		6 ⁽³⁾			
Washing face and hands		5 ⁽⁴⁾			
Getting a drink		0.25 ⁽⁵⁾			
Brushing teeth		2 ⁽⁶⁾			
Cooking		10 ⁽⁷⁾			
Washing clothes		60 ⁽⁸⁾			
Washing dishes		30 ⁽⁹⁾			
Other					

TOTALS (should include things that don't happen every week): _____

*notes on estimates:

1. Depends on how full the tub is	2. 25 gal with low-flow head
3. 1.5 gal with water-saver toilet	4. 2 gallons if you turn the water off
5. Includes running water to cool it	6. 0.25 if you turn water off
7. Per supper, includes rinsing	8. Large load
9. 10 gallons with dishwasher or if you use two 5-gallon pans	

23.3

“Water” We Going to Do?

Home Water Conservation Survey

Use this form to survey your home for water use. Use the space provided to add an additional question in each category. If the answer is sometimes yes and sometimes no, mark the one that is usually true.

Indoors

Bathrooms

- ___ yes Have toilet tanks been checked for leaks?
- ___ no (Place a few drops of food coloring or dye tablets in the toilet tank. If coloring is seen in the bowl without flushing, there is a leak that needs to be repaired.)
- ___ yes Are tissues disposed of in the toilet?
- ___ no (Use a waste basket for tissues. Each flush uses up to seven gallons of water, depending on the type of toilet.)
- ___ yes Is there a plastic bottle, bag, or “dam” in the toilet tank, or do you have a low-flush toilet?
- ___ no (Put a little clean sand or some pebbles in the bottom of a plastic bottle or bag and fill it with water. Cap the bottle or tie the bag. Place it in the toilet tank, SAFELY AWAY FROM ALL MOVING PARTS. Better yet, consider installing a low-flush toilet, which uses only one to five gallons per flush, rather than five to seven gallons per flush.)
- ___ yes Is there a leaky faucet in the sink or shower?
- ___ no (You can fix it either by tightening the fixture or replacing the faucet washer.)
- ___ yes Are family members taking short showers (five minutes or less?)
- ___ no (Taking shorter showers can save up to eight gallons of water per minute.)
- ___ yes Do you have low-flow shower heads and flow restrictors?
- ___ no (Low-flow shower heads and flow restrictors significantly reduce water use and save money and hot water too.)
- ___ yes _____
- ___ no _____

Kitchen and Laundry

- ☐ yes Are there leaky faucets?
☐ no (Tighten the faucet or replace the washer.)
- ☐ yes Are there flow restrictors on the faucets?
☐ no (Flow restrictors are easy to install and save water, energy, and money.)
- ☐ yes Are dishwashers and washing machines turned on only when full?
☐ no (Wait until you have a full load. Use water and energy-saving cycles.)
- ☐ yes Do you rinse vegetables with the water running?
☐ no (Rinsing vegetables in a bowl or stoppered sink saves water. The rinse water can be used to water plants.)
- ☐ yes _____
☐ no _____

Outdoors

- ☐ yes Have all faucets been checked for leaks?
☐ no (Small leaks add up to large losses. Replace leaky washers.)
- ☐ yes Are lawns and plants watered only when they really need it?
☐ no (Check lawns and shrubs to see if they need water. A lawn that springs back after being stepped on doesn't need water. Devices can be purchased to test for soil moisture. Turn automatic sprinklers off in rainy weather.)
- ☐ yes Do you use drought-tolerant plants in your landscaping?
☐ no (Landscaping with drought-tolerant plants can reduce both water use and maintenance in your yard. Consult a local nursery.)
- ☐ yes Do you water plants and lawns early in the morning or late in the evening?
☐ no (Watering during the hot part of the day wastes water because of evaporation.)
- ☐ yes Do you use a hose to clean driveways and sidewalks?
☐ no (Use a broom. It does the job just as well.)
- ☐ yes Do you use a bucket when you wash the car?
☐ no (Using a hose wastes water. At least turn the water off when not actually spraying the car. Wash the car while it is on the lawn.)
- ☐ yes _____
☐ no _____

23.4

"Water" We Going to Do? Questions

1. What is the major use of water in the United States?

2. What is the major use of water in the home?

3. In your daily life, how can you reduce water used in the following areas?
 - a. Agriculture

 - b. Manufacturing

 - c. Electrical generation

4. Should we be growing crops such as alfalfa, cotton, and rice in areas such as California and Arizona where there is not enough naturally available water for them? Why or why not?

5. Why is it important to conserve water at home?

6. List several ways to conserve water at home.

7. List several ways that conserving water benefits the environment.

