



Be Water Wise

School Water Audit

Introduction

This activity is designed to help teachers, students and custodians investigate the ways water is used in and around the school building. By completing the activity, students and school staff will learn about the amount of water that is consumed throughout the school for activities including washing hands, drinking, watering landscaped areas and flushing toilets and urinals. This activity should be used to collect baseline data for your school's Be Water Wise water conservation project. As you complete the activity, consider the ways students and staff may work to improve water conservation throughout the building and on school grounds.

Materials

In addition to this activity sheet, you will need a few materials to complete the exercise. These include:

- Your school's water bills for the past 12 months
- A stopwatch for calculating the flow rate of faucets, water fountains and showerheads
- Several flow meter bags for each student or group of student who will be calculating the flow rates
- A digital camera or sketch paper and colored pencils for recording observations

Activity Sections

This activity contains four sections. Teachers may choose to divide students into groups with one group completing each section, complete the sections as a class at separate times, or divide the activity up among different classes within the school and compile the information once complete. Younger students will need more guidance as they complete the activity.

A. School Buildings

Students will answer general questions about water use in the entire building and calculate the amount of water used by each student and staff person each day. As they complete this section, it may be useful for students to interview the custodian or facility manager.

B. Indoor Water Using Devices

Students will survey and collect data on all of the water using devices throughout the school – including faucets, toilets, urinals, showerheads and lab sinks.

C. School Grounds

Students will walk around the school campus, recording observations about the water that is used outdoors to water landscaping, playgrounds or fields.

D. Outdoor Irrigation

Students will interview the custodian or facility manager responsible for outdoor irrigation on the school grounds to learn about when and how the landscaping, playgrounds and fields are watered.

A. School Buildings

The questions in this section ask about water use at your school. You may need the assistance of the school custodian or facility manager to answer these questions. You will also need information from your school's water bills for the past year.

1. What is the source of your school's water supply?

- Municipal water supply
- School has its own well

2. If your water comes from a municipal supply, what is its source?

- Well (aquifer)
- Lake (surface water)

Name of water source (name of aquifer, lake, river, reservoir): _____

3. According to your school's water bills, how many gallons of water has your school used over the past 12 months? If outdoor and indoor water was billed separately, add these together to get the total.

Gallons used indoors: _____
Gallons used outdoors: _____
Total gallons: _____

4. If your water comes from a municipal supply, what did your school pay last year for water?

\$ _____

How much does the water company charge per unit of water?

\$ _____ per _____

5. Complete the following about the students and staff at your school.

Number of female students: _____ Number of female staff: _____

Number of male students: _____ Number of male staff: _____

Total number of students and staff: _____

6. Using your school's water bill, think about which of those months school is in session. Total the number of gallons used during those months that fall during the school year, then use that information to calculate the gallons of water used per person per day during the school year.

Total gallons during school year \div Total students and staff \div Days in school year = _____

7. According to your school's water bill, during which month(s) of the year is the most water used? What do you think is the reason for this?

8. According to your school's water bill, during which month(s) is the least amount of water used? Why do you think this is true?

9. Does your school have a swimming pool?

- Yes
- No

If you answered yes, is a pool cover used? (This is important because pool covers can limit evaporation)

- Yes
- No

10. Does your school have a cooling tower? Cooling towers are usually found outside next to the chiller (HVAC) room. Sometimes it is located on the roof above the chiller.

- Yes
- No



A cooling tower may be found on your school's roof or outside next to the HVAC room.

B. Indoor Water Using Devices

Complete the data table on the following page with information about the water using devices throughout the school building. Add rows if necessary to collect information on all of the indoor devices in your school.

Place the number of each device found at each location on the chart, and after that number, indicate the number that are leaking in parentheses. Example: If bathroom 1 has 10 faucets and two are leaking, write 10(2).

The following notations are used in the chart:

A = Automatic (equipment that must be turned on manually but turns off automatically)

S = Sensors (equipment that turns on and off based on the movement of a person)

M = Manual (equipment that must be physically turned on and off by a user)

GPM = Gallons per minute (faucets and showers)

GPF = Gallons per flush (urinals and toilets)

The images below will help you identify or calculate the information needed to complete the chart.



The gallons per flush (GPF) used by a toilet is usually indicated near the rear of the fixture.



The gallons per flush (GPF) used by a urinal may be indicated on the side of the fixture.



If a faucet has a motion sensor, it is located near the base of the fixture.



To calculate the flow rate (gallons per minute or GPM) of a faucet, water fountain, or shower, use a flow meter bag. Detailed instructions are provided on the bag.

Data Table: Indoor Water Using Devices

Location	Room Number	Faucets				Toilets			Urinals			Showers	
		A	S	M	GPM	S	M	GPF	S	M	GPF	M	GPF
Classroom 1													
Classroom 2													
Classroom 3													
Classroom 4													
Classroom 5													
Classroom 6													
Classroom 7													
Classroom 8													
Classroom 9													
Classroom 10													
Bathroom 1													
Bathroom 2													
Bathroom 3													
Bathroom 4													
Bathroom 5													
Bathroom 6													
Locker room 1													
Locker room 2													
Nurse's office													
Custodial 1													
Custodial 2													
Custodial 3													
Cafeteria													
Teacher prep room													
Pool													
Other: _____													
Other: _____													
Other: _____													

C. School Grounds (outdoor water use)

In this section you will collect data about outdoor water use on the school property. Again, you may need the assistance of the custodian or facility manager to answer some of these questions. Many of these questions will be most easily answered within a few hours of watering.

1. How many water faucets are located outside of the building? _____

2. How many outdoor water faucets are leaking? _____

3. How many outdoor water faucets have been secured so that only school staff may turn them on or off? _____

4. Does your school building have gutters and/or downspouts?

Yes

No

If yes, do they appear clear of debris, such as leaves or garbage?

Yes

No

5. Does your school have a rain collection system (such as rain barrels)?

Yes

No

6. Does your school have a rain garden?

Yes

No

7. Does your school use native or low-water-use plants (xeriscaping)?

Yes

No

8. Does your school have any outdoor fountains or artificial waterfalls?

Yes

No

If yes, answer the following:

a. Are they turned off in the evening?

Yes

No

b. Are they turned off in very hot weather?

- Yes
- No

c. Do they re-circulate water?

- Yes
- No

9. How many water meters are there at the school? _____

A water meter measures and records the amount of water flowing through it at any moment. They may be found buried outside the building or indoors where the water line comes into the building.

Do the meters supply water for both indoor and outdoor use?

- Yes
- No

10. Do you see dry or soggy patches in the grass, in flowerbeds or in other landscaped areas?

- Yes
- No

If yes, describe the location and what you see. Take photographs or sketch the area.

11. Do you see puddles or standing water resulting from irrigation runoff?

- Yes
- No

If yes, describe the location and what you see. Take photographs or sketch the area.



Often, landscape irrigation runs off into parking lots or other paved areas.

12. Do you see moss growing or slippery-wet areas on any paved areas?

- Yes
- No

If yes, describe the location and what you see. Take photographs or sketch the area.

13. Do you see cracks in the pavement, uneven sidewalks where water runs off or other water damage in the pavement or parking lots?

- Yes
- No

If yes, describe the location and what you see. Take photographs or sketch the area.



Paved areas such as parking lots and sidewalks can become damaged by runoff.

14. Do you see lots of weeds in the landscape?

- Yes
- No

If yes, describe the location and what you see. Take photographs or sketch the area.

15. Are there slopes in the landscape?

- Yes
- No

If the answer is yes:

a. Describe the location and what you see. Take photographs or sketch the area.



Sloped areas in the landscape can increase runoff.

b. Do you see dirt running off of the landscape due to the slopes?

- Yes
- No

If yes, take photographs or sketch the area.

D. Outdoor Irrigation

Complete the chart below as you discuss with your school custodian or facilities manager the outdoor irrigation that takes place on the school campus. Record information in the table about each irrigated area. Be sure to ask about each lawn area (such as a garden or flower bed), playing field and playground area. Ask him or her to show you the irrigation controllers and sprinklers on the school grounds.

Name of area	Location and description	How many times per week is the area watered?	What time of day is the area watered?	For how many minutes is the area watered?	Is a sprinkler timer used for this area?	Is a rain sensor used for this area?	Notes

Additional notes: