Assessment Guide - Water Quality & Conservation

*Now that you have completed **Step 1: Build a Green Team**, you are ready to proceed in your process of becoming a Washington Green School.*

Objective

Step 2: Assess. This Water Quality & Conservation Assessment guide provides tips on how to complete the Transportation & Outdoor Air Quality Assessment and some recommended resources. The goal of completing the Assessment is for your Green Team and other school members to get a good overview of your watershed: the source of your water, how it is transported to your school, how the school uses and helps protect the resource, and how water is discharged. In addition, you'll find opportunities and learn ways to reduce the amount of water that is used at the school and on, as well as how daily school operations impact water conservation and water quality protection efforts.

Once your Assessment is complete, you will be able to use the answers and information to identify a Lasting Change (for Step 3) that you can implement for an ongoing significant impact in water quality and conservation practices.

Things to Consider for a Successful Process

1. **Careful planning is the key to successfully completing the Assessment.**

   First, meet with your Green Team and decide who will complete the Assessment?
   - The whole Green Team?
   - Or a combination of Green Team members, classrooms, staff or grade levels?

2. **Who do you need to call or meet to answer the questions related to Water Quality and Conservation?**

   You may wish to include:
   - Teachers who specialize in this topic
   - School district staff
   - Facilities staff
   - Groundskeeper
   - Utility that provides water
   - Utility that manages wastewater and stormwater
   - Environmental or wetland scientist
   - Environmental restoration organization

3. **How will you save the information you've collected for the future?**

   - To certify as a Washington Green School, you must enter 10 key findings from your Assessment in the Online Form for Step 2. You may also want to save the information you gather on site at your school, so that students who repeat this Assessment in the future can learn from what you did, and compare results. This could show how the actions you completed helped conserve water and protect water quality over time. Find a central location that's easily accessible to store all your Assessment findings and other Washington Green Schools materials. Make sure to inform future key school staff and future Green Team members where to find it.
   - Remember, in order to certify, you must also scan (or take a picture of) your hand-written assessment findings, and upload them with your other Washington Green School records in your school account at www.wagreenschools.org.

Support Information for Assessment Questions

Assessment Question	Hint	Why It's Important	Related Action Items
School Buildings			
1. What is the source of your school's water supply?	Contact the local water utility.	If you're concerned about the quality of the water you use, you need to know where it's been before it gets to you. The way land is used upstream has a direct effect on your water. Most of us live downstream from other people, factories, neighborhoods, and/or big cities. Knowing where the water comes from can also help provide students a sense of connection to their community and region.	• Learn about your school's watershed, the source of your school's drinking water, and where water from your site drains. Create a simple map of your school's location within the watershed.
2. If your water comes from a municipal supply, what is its source?	Does it come from your local watershed or is it piped in from further away?		
3. If your water comes from a municipal supply, what did your school pay last year for water?	If the bills are paid by the district, contact the school district and ask them for the meter readings for your school.	Water conservation efforts start by establishing a baseline of use. Analyzing your bills will also help provide more information about your water use. If your system is sub-metered, you can tell where the water is being used. Is it irrigation? Hot water? A pool? The heating and cooling systems? Tracking your school's water usage can help your school measure the impact (and financial savings) of newly adopted water conservation practices.	• Begin tracking your school's water usage and associated costs. Students can use the data to create charts, graphs, presentations for community members or other audiences, and display monthly usage results in a common area. • Research three local or international schools to learn what they are doing to conserve water, and how they are measuring and evaluating their results. Present findings to the school community or other appropriate audience. • Run water quality tests on your drinking water and present your findings to the school administration.

Assessment Question	Hint	Why It's Important	Related Action Items
4. Using information from water bills or in-school water meters, how much water did your school use last year?			
5. If your drinking water comes from a private well, who samples the water? Is that person a certified operator?	Ask your facilities manager or contact your local health department.	Testing and metering drinking water provide both qualitative and quantitative data. The data provide useful starting points for water quality protection and conservation efforts.	
6. If your drinking water comes from a private well, is it metered so that water use can be monitored?			
7. Is your drinking water tested for chemical contaminants and bacteria?			
8. Where does wastewater used in your school go?	Ask your facilities manager or contact the local water utility.	Increasing awareness about the destination of wastewater can help students understand why reductions in wastewater are important.	
9. Does your school have a plan to deal with chemical spills that may travel into the public sewer system?	Ask your facilities manager/ staff.	Chemical spills threaten human and environmental health downstream from your school. Emergency plans help protect downstream neighbors.	
10. On average, how much water do the school's toilets use per flush?	Toilets are usually labeled with this information. If not, ask your facilities staff for the "cut sheet" for each type of toilet.	Toilets consume a large percentage of a school's water budget. Once you determine what the flush rate is of your toilets, you can calculate water and dollar savings of potential toilet upgrades.	• Based on your Water Quality/Conservation Assessment, determine water savings (in volume and dollars) for one year for one of the following: faucet fixtures, low-flow toilets and waterless urinals, low-flow showerheads, or irrigation systems. Present your findings to your administration.

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11. How many hot water heaters does your school have?	Ask your facilities manager/ staff.		
12. What type(s) of energy is used to heat the school's water?			
13. Does your school have any "on demand" hot water systems (water that is heated as it is being used without the need for hot water storage tanks)?		On demand systems heat only the water needed rather than letting heated water sit in a storage tank until it is used.	
14. Are the water pipes in your school insulated?		Insulated pipes reduce the amount of heat loss through the pipes.	
15. Does your school cafeteria have a food steamer? If yes, is it an efficient "connectionless" steamer?	Ask cafeteria staff.		
16. Does your school cafeteria have an efficient pre-rinse spray nozzle?	Ask cafeteria staff.	Commercial kitchen spray nozzles may consume a lot of water, but high-efficiency models exist.	• Research water impacts of processing and packaging food served in your cafeteria and present your research to the school community, with recommendations on changes that should be made, if any.
17. Does your school cafeteria have a water-efficient dishwasher?	Commercial kitchen dishwashers are not always labeled with this information. If not, ask your facilities staff for the "cut sheet" for the dishwasher.		

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18. Does your school have a swimming pool? If yes, answer the following: • Does your pool have a pool cover that is used? • How does pool staff clean the pool's filters? • How often are pool chemical levels checked to insure proper balance? What sanitation processes or chemicals are used or added to the pool water?	If yes, ask your facilities manager/ staff to determine maintenance procedures and routines.	Swimming pools use a high volume of water and need to be properly maintained to avoid having to drain and refill any more than necessary for maintenance of the pool itself.	
School Grounds			
19. How many water faucets are located outside of the school building?		Students can begin to estimate/calculate water usage after locating and counting water- using devices the school uses.	
20. How many of those faucets are leaking?		Leaking water faucets can add up to large amounts of wasted water over time.	• Make sure that fixing leaking faucets and hoses and repairing broken sprinkler heads is in the district's water conservation policy.
21. How many water faucets have been secured so that only staff may turn them on or off?		Unauthorized use of outdoor water faucets can increase water usage for the school.	
22. Does school staff use hoses to wash sidewalks and parking areas?	Ask maintenance/ custodial staff to determine sidewalk and parking area cleaning procedures.	There are energy- and water-saving strategies as alternatives to using hoses and pressure washers to clean sidewalks and concrete.	• Measure/estimate how much water is used per year for pressure washing and hosing sidewalks and other concrete. Provide alternatives to using water for these activities and present your findings and recommendations to your administration.

Assessment Question	Hint	Why It's Important	Related Action Items
23. What is the name of the watershed your school is located in?		Identifying your watershed will enable you to determine the origin of water that flows onto your site and where surface water and precipitation goes when it leaves the site. The amount of precipitation received at your school will affect water usage.	• Learn about your school's watershed, the source of your school's drinking water, and where it drains. Create a simple map of your school's location within the watershed.
24. What is the annual precipitation (inches) in the town where your school is located?			• Incorporate precipitation gauge data into the school curriculum.
25. Does you school building have gutters and/ or downspouts? If yes, how often are they cleaned?		Stormwater runoff can have a negative effect on surrounding rivers and streams by introducing increased levels of chemical contaminants and sedimentation.	If you pursue any of the following action items, present your findings and recommendations to the administration. • Learn about using rain barrels for capturing rain water and for irrigation. Determine if rain barrels are appropriate at your school • Calculate stormwater runoff, and suggest alternative ways to divert the stormwater away from stormwater drains and put it back to use. • Research pervious surface alternatives for all impervious surfaces (concrete, asphalt, roofing) and calculate the amount of stormwater reduction if replaced. • If your school will be remodeling or adding new buildings in the near future, research low impact development (LID) techniques.
26. Where does the water that runs off the school's roof, parking lots and grounds go?			
27. Does your school have a plan for managing and reducing runoff from the school grounds?			

Assessment Question	Hint	Why It's Important	Related Action Items
28. Does your school have a student or community organic garden?			• If you have a school garden, change to a more water-efficient method of watering. • Research how different agricultural production methods affect downstream water quality (including produce, meat and grains). Present findings to the school community, with recommendations for your school foodservice.
29. Does your school have a rain garden?		Rain gardens are a good way to slow stormwater and allow for infiltration on-site.	• Research rain gardens, their benefits and design elements to see if they are appropriate at your school. Present your findings and a proposed location to the school administration.
30. Does your school have any outdoor fountains or artificial waterfalls? If yes, answer the following: • Are they tuned off in the evening? • Are they turned off in very hot weather? • Do they re-circulate water? • Who maintains them?	Ask your facilities manager/ staff to determine fountain operation policies?	Water fountains can lead to improper use of resources (water, energy) if left on when there are no occupants present or if operated during hot weather, due to evaporation.	
31. How often are the lawns (non-athletic) watered? • What time of the day?	Ask your facilities manager/ staff for lawn watering schedules.	Watering lawns can be one of the largest uses of water in a school. By replacing the lawn with shrubs or native plants you can reduce the school's demand on water resources.	• Determine how much water is used per year to water lawn/athletic fields. Recommend replacing any non-field lawns with shrubs or native plants and calculate the water savings (in volume and dollars). Present these findings and recommendations to the administration.
32. Do your lawns have shade trees?			

Assessment Question	Hint	Why It's Important	Related Action Items
33. Do you have athletic fields? If yes answer the following: • How many fields are there? • How often are the athletic fields watered? • What time of day are they watered?	Ask your facilities manager/ staff.		• Research how the design of playfields can reduce irrigation needs and determine if your school could redesign your playfields to incorporate water-saving benefits. Present these findings to your administration.
Curriculum and Community			
34. Is water conservation or water quality part of your school's curriculum? If yes, in what grades is it taught?			• Have older students teach younger students activities or lessons relating to water quality and conservation.
35. Have any of your school staff participated in staff development programs for water education within the past year?	Ask your principal/staff.		• Run an educational campaign for staff and students about actions they take that can affect surface water quality in your school and community. • Present an in-service training related to water quality and conservation to teachers, school staff, or PTA.
36. Does your school participate in any water related restoration projects that benefit the community? If yes, what are they?			• Develop a policy at your school to protect your local watershed by choosing actions that conserve and protect water sources.
37. Do any clubs or organizations within the school organize car washes as a fundraiser? If yes, which ones?	Check these resources for good carwash options: www.kingcounty.gov/environment/stewardship/carwash-kit.aspx www.ecy.wa.gove/washington_waters/carwash.html	Car wash runoff can have a negative impact on surrounding wetlands, streams, and habitats by adding water that contains suspended solids and chemical contaminants from the soaps used to wash cars.	• Provide outreach to the community about earth friendly car washing practices. • Design a campaign to run a "green" car wash using car wash kits. • Provide information to school groups about the negative effects of fundraiser carwashes that do not meet the "no illicit discharge" law. • Finalize and implement a water quality protection policy regarding charity carwashes and alternatives (coupons, carwash kits, and education about where and how).

Assessment Question	Hint	Why It's Important	Related Action Items
38. Does your school have any natural water features (such as a pond or creek) on its property? If yes, does your school use it as a learning tool for students?		Understanding the hydrology and water quality of your surrounding area can create awareness about the impacts of water contaminants.	• Test the local water body for common contaminants and quality (temperature, dissolved oxygen, etc.) and invertebrates and report these findings in a display in the school.
39. Some water management facilities can be used as educational resources. Which can be used in your community? • Pump station • Water tower • Drinking water treatment plant • Wastewater treatment plant • Stormwater detention pond		Understanding the different processes that water undergoes before and after its use can increase awareness about the importance of water conservation.	
40. Do you have water resource educators in your community? If yes, list the name(s) of the agencies they work for and contact information.	Research community organizations, non-profits, government agencies and businesses for local water quality and conservation expert educators.	Local technical experts will provide the most accurate information for your area.	• Contact local agencies to find out what resources, programs and technical assistance in water protection or conservation are available for your school and schedule a speaker, program or technical assistance. • Work with local conservation agencies to organize a restoration project near the school or in your watershed.
41. Do you have technical assistance in your community for water resource issues at your school? If yes, list the name(s) of the agencies they work for and contact information.			

Assessment Question	Hint	Why It's Important	Related Action Items
42. Do students at your school participate in any water quality testing or monitoring programs?	Contact your school administrators, staff, or members of your Green Team to find out the extent of water quality and conservation-focused activities and lesson plans used within classrooms.	Water quality monitoring programs can help track and educate students about the local watershed including: potential water quality impacts; effects of conservation efforts; and techniques of measuring and monitoring.	• Test the local water body for common contaminants and quality (temperature, dissolved oxygen, etc.) and invertebrates and report these findings in a display in the school.
43. Do students at your school study salmon or other fish habitat, or raise salmon/fish in the classroom?		Salmon are an indicator species that are directly impacted by how humans use water. Chemical contaminants, sedimentation, and increases in water temperature negatively impact the salmon's habitat resulting in lower salmon population.	
44. Do your students learn about their watershed, where their water comes from and where it goes after use?			• Connect your local watershed to the science curriculum. • Incorporate water quality/conservation lessons into other subject areas (art, poetry, literature).
45. Have students at your school participated in any storm drain stenciling projects around the school grounds or in nearby neighborhoods?		Water that enters storm drains is often draining directly into surrounding water bodies without treatment. Educating people about this fact can help reduce chemical contaminants in local water bodies.	