



Water Conservation

POST-ACTION AUDIT, GRADES 9-12

Did the class/team work with any resource experts and/or volunteers? Yes No

If applicable, please list. _____

REQUIRED METRICS

1. Number of water using devices monitored.
2. On average, by how many gallons has the school's water usage decreased?

SURVEY

Using the same questions from the baseline audit, survey students and record the average response.

1. We have an infinite source of usable water. True False Unsure
2. Our school's water sources are free of contaminants, such as bacteria and lead.
 True False Unsure
3. Water use has environmental and financial impacts. True False Unsure

On a scale from 1-10, 10 being the most important and 1 being the least important,

4. How important is the topic of water conservation to you? _____
5. How important is it to install water conserving appliances or devices? _____

How have student's attitudes and ideas changed from the baseline audit?



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TABLE 1. DEFINING THE STUDY SITE

<p>1. Since the baseline audit have the school's water sources been tested (first test or follow-up test) for the following contaminants.* (faucets, fountains, showers) 2016 WIIN Act – Provision, Sec. 2107: Lead testing in school and child care program drinking water</p>	<p>___ lead ___ bacteria ___ iron ___ mercury ___ copper ___ nitrates ___ unsure</p>
<p>2. The results of the tests and actions if needed were made available to the school community.</p>	<p>___ Yes ___ No ___ N/A</p>
<p>3. Is the school and district on a track to spend more or less than was estimated in the baseline audit?</p>	<p>___ More ___ Less ___ Information Unavailable</p>

*Do you have questions regarding water quality at school? The [Healthy Schools Pathway](#) can help. If the team needs a timely response, please contact us at eco-schoolsusa@nwf.org.

HEATING AND AIR CONDITIONING (HVAC)

CHART 1. HEATING AND AIR CONDITIONING (HVAC)

<p>1. As the result of the team's action plan have new units been installed or is an update or replacement plan in place?</p>	<p>___ Yes ___ No</p>
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Think about the following questions as you summarize the information in Chart 1.

1. If applicable, how was this information used in the development of the action plan?
2. If students designed alternative systems, summarize the experience or add photos below.



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IRRIGATION

CHART 2. GENERAL IRRIGATION

<p>1. During the baseline audit, team members walked the school grounds to observe land cover. Has land cover changed anywhere on the school grounds?</p>	<p style="text-align: right;">___ Yes ___ No</p> <p>If yes, explain. _____</p> <p>_____</p>
<p>2. Is the school or district on track to spend more or less on irrigation than is expected?</p>	<p style="text-align: right;">___ More ___ Less ___ Information Unavailable</p>
<p>3. Review the average rainfall from the baseline audit. For the current year, are monthly averages near (+ or – 2 degrees), below or above average. https://www.usclimatedata.com/</p>	<p style="text-align: right;">___ Average ___ Below ___ Above</p>

CHART 3. IRRIGATION SYSTEMS AND SPRINKLERS

<p>1. Did the team’s action plan address issues found with the school’s irrigation system and/or sprinklers?</p>	<p style="text-align: right;">___ Yes ___ No</p> <p>Explain: _____</p> <p>_____</p>
<p>2. Do team members have a reporting system in place for water leaks, broken heads, or malfunctioning sprinklers?</p>	<p style="text-align: right;">___ Yes ___ No</p>

Think about the following questions as you summarize the information in Charts 2 and 3.

1. What did teams/classes learn about irrigation as it relates to water conservation strategies at the school?
2. Describe one action the team/class took to improve water conservation outside of the building?



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CHART 4. SCHOOL BATHROOMS

Using the same school blueprint maps and locations, as used during the baseline audit, work with the team/class to complete the post-action audit charts and calculations. The collected data will be used to draw conclusion about water use, post-action.

(A) Automatic (S) Sensor (M) Manual (GPF) Gallons per Flush (GPM) Gallons per Minute

Location or Room Number	Toilets				Urinals				Bathroom Faucets				Shower Heads				Other			
	A	S	M	GPF	A	S	M	GPF	A	S	M	GPM	A	S	M	GPM	A	S	M	
Girls locker room next to Gym A			X	3.5					X			2.5			X	2.5				
Total appliance numbers observed at each location	A	S	M		A	S	M		A	S	M		A	S	M		A	S	M	
Any observed leaks?	___ Yes ___ No				___ Yes ___ No				___ Yes ___ No				___ Yes ___ No				___ Yes ___ No			



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CHART 5. KITCHEN

Collect data on up to three areas that best represent the kitchen equipment found at the school. For safety reason, student may not be allowed in the kitchen area. If that is the case, work with the kitchen manager to collect the data.

(A) Automatic (S) Sensor (M) Manual (GPF) Gallons per Minute (GPM) Gallons per Hour

Location or Room Number	Sinks				Sink Disposal				Dishwashers				Steamers				Other							
	A	S	M	GPM	A	S	M	GPM	A	S	M	GPM	A	S	M	GPH	A	S	M					
Total appliance numbers observed at each location	A	S	M		A	S	M		A	S	M		A	S	M		A	S	M					
Any observed leaks?	___ Yes ___ No				___ Yes ___ No				___ Yes ___ No				___ Yes ___ No				___ Yes ___ No							



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CHART 6. OTHER WATER USING APPLIANCES

Collect data on up to five areas that best represent other water using appliances or devices found at school.

(A) Automatic (S) Sensor (M) Manual (GPHP) Gallons per Hundred Pounds (GPM) Gallons per Minute (GPL) Gallons per Load

Location or Room Number	Ice Makers				Lab Faucets				Clothes Washing Machines				Utility Closet(s) or Other Faucets				Water Fountains				Other			
	A	S	M	GPHP	A	S	M	GPM	A	S	M	GPL	A	S	M	GPM	A	S	M	GPH	A	S	M	
Total appliance numbers observed at each location	A	S	M		A	S	M		A	S	M		A	S	M		A	S	M		A	S	M	
Any observed leaks?	___ Yes ___ No				___ Yes ___ No				___ Yes ___ No				___ Yes ___ No				___ Yes ___ No							



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Think about the following questions as you summarize the information in Charts 4-6.

1. How has water use changed in the school building?
2. If the district can provide district or school water use data, has water consumption at the school declined?
3. Describe one action the team/class took to improve water conservation inside the building?



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TABLE 2. WATER CONSERVING APPLIANCES, DEVICES AND PRACTICES

<p>1. Is the school certified as an Energy Star School?</p>	<p>___ Certified prior to the audits</p> <p>___ Certified as a result our action plan</p> <p>___ No</p>
<p>2. Do all indoor faucets/showerheads have aerators?</p>	<p>___ Aerators installed prior to audits</p> <p>___ Aerators installed as a result of our action plan</p> <p>___ No</p>
<p>3. Do any appliances and/or devices bear the WaterSense label? https://www.epa.gov/watersense/types-facilities</p>	<p>___ More than 50% of our school's appliances had the Watersense label prior to the audits</p> <p>___ More than 50% of our school's appliances bear the WaterSense label as a result of our action plan</p> <p>___ No</p>
<p>4. Estimate what percentage of the school's toilets and urinals are considered low-flow/high-efficiency?</p>	<p>___ More than 50% of our toilets and urinals were considered low-flow/high-efficiency prior to the audits</p> <p>___ % as a result of our action plan</p>
<p>5. Does the school use greywater? https://greywateraction.org/greywater-reuse/</p>	<p>___ Greywater use was in place prior to the audits</p> <p>___ Greywater use is in place as the result of our action plan</p> <p>___ No</p>

Continued on the next page.



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TABLE 2. WATER CONSERVING APPLIANCES, DEVICES AND PRACTICES, CONTINUED

<p>6. Does the school have water bottle filling stations?</p>	<p>___ Stations were in place prior to our audits</p> <p>___ Stations are in place as a result of our action plan</p> <p style="text-align: right;">___ How many?</p> <p>___ No</p>
<p>7. Does the school encourage students to bring and use reusable water bottles?</p>	<p>___ Yes, this practice was in place prior to the audits</p> <p>___ Yes, this practice is now in place as a result of the action plan</p> <p>___ No</p>
<p>8. Does the school have functioning rain barrels?</p>	<p>___ Functioning rain barrels were in place prior to our audits</p> <p>___ Functioning rain barrels are in place as a result of our action plan</p> <p style="text-align: right;">___ How many?</p> <p>___ No</p>
<p>9. Does the school have functioning cisterns?</p>	<p>___ Functioning cisterns were in place prior to our audits</p> <p>___ Functioning cisterns are in place as a result of our action plan</p> <p style="text-align: right;">___ How many?</p> <p>___ No</p>

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TABLE 2. WATER CONSERVING APPLIANCES, DEVICES AND PRACTICES, CONTINUED

<p>10. Does the school use native grasses, trees, shrubs and flowers in its landscape design?</p>	<p>_____ This practice was in place prior to the audits</p> <p>_____ This practice is in place as a result of our action plan</p> <p>_____ Estimate % of native plants</p> <p>_____ No</p>
<p>11. Do any parts of the school grounds use xeriscaping, have installed rain gardens or bioretention ponds?</p>	<p>_____ These water conserving practices were in place prior to the audits</p> <p>_____ These water conserving practices are now in place as a result of our action plan</p> <p>_____ Estimate %</p> <p>_____ No</p>
<p>12. List any other new water conserving practices used at the school. Provide practices not listed in the baseline audit and were implemented as a direct result of the team's action plan.</p>	

Think about the following question as you summarize the data in Table 2.

1. Based on the responses in Table 2, would the team/class say the school's use of water conserving practices improved, stayed the same or declined? Explain.
2. How do water conserving practices impact other systems, such as ecosystems and biogeochemical cycles?
3. Describe one action students took to improve water stewardship?



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Review of All Data

1. Based on what is known and has been learned, what claims can be made based on the data and other evidence collected?
2. In water conservation there are natural and man-made systems. What role have **systems and system models** played in understanding water conservation at school, in the community and in the state/nation?
3. Provide two or more **cause and effect** relationships related to water conservation observed as team's addressed the water issues at school.
4. Describe two or more **patterns** teams identified through their investigation of water use at the school.
5. As teams investigated water use, have them explain how **matter cycles** through the various natural and man-made systems and how **energy flows** from one source to another.