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

1. 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,

1. How important is the topic of water conservation to you?
2. How important is it to install water conserving appliances or devices?

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

TABLE 1. DEFINING THE STUDY SITE

|  |  |
| --- | --- |
| 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](https://www.epa.gov/dwcapacity/wiin-grant-lead-testing-school-and-child-care-program-drinking-water) |  lead bacteria iron mercury copper nitrates unsure |
| 2. The results of the tests and actions if needed weremade available to the school community. |  Yes No N/A |
| 3. Is the school and district on a track to spend moreor less than was estimated in the baseline audit? |  More Less Information Unavailable |

\*Do you have questions regarding water quality at school? The [Healthy Schools Pathway](https://www.nwf.org/Eco-Schools-USA/Pathways/Healthy-Schools) 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)

|  |  |
| --- | --- |
| 1. As the result of the team’s action plan have new units been installed or is an update orreplacement plan in place? |  Yes No |

### 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.

# IRRIGATION

## CHART 2. GENERAL IRRIGATION

|  |  |
| --- | --- |
| 1. During the baseline audit, team members walked the school grounds to observe land cover. Has land cover changed anywhere on the school grounds? |  Yes NoIf yes, explain.  |
| 2. Is the school or district on track to spend moreor less on irrigation than is expected? |  More Less Information Unavailable |
| 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/> |  Average Below Above |

CHART 3. IRRIGATION SYSTEMS AND SPRINKLERS

|  |  |
| --- | --- |
| 1. Did the team’s action plan address issues found with the school’s irrigation system and/or sprinklers? |  Yes NoExplain:  |
| 2. Do team members have a reporting system inplace for water leaks, broken heads, or malfunctioning sprinklers? |  Yes No |

### 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?

# 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.

* 1. 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** |  |  |  |  |
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|  |
| **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 |

# 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

 Yes No

 Yes No

 Yes No

 Yes No

Yes No

**Any observed leaks?**

**M**

**S**

**A**

**M**

**S**

**A**

**M**

**S**

**A**

**M**

**S**

**A**

**M**

**S**

**A**

**Total appliance numbers observed at each location**

**M**

**S**

**A**

**GPH**

**M**

**S**

**A**

**GPM**

**M**

**S**

**A**

**GPM**

**M**

**S**

**A**

**GPM**

**M**

**S**

**A**

**Other**

**Steamers**

**Dishwashers**

**Sink Disposal**

**Sinks**

**Location or Room Number**

# 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** |  |
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|  |  |
| **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 |  Yes No |

### 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?

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

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

### Continued on the next page.

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

|  |  |
| --- | --- |
| 6. Does the school have water bottle filling stations? |  Stations were in place prior to our audits Stations are in place as a result of our action plan How many? No |
| 7. Does the school encourage students to bring and use reusable water bottles? |  Yes, this practice was in place prior to the audits Yes, this practice is now in place as a result of the action plan No |
| 8. Does the school have functioning rain barrels? |  Functioning rain barrels were in place prior to our audits Functioning rain barrels are in place as a result of our action plan How many? No |
| 9. Does the school have functioning cisterns? |  Functioning cisterns were in place prior to our audits Functioning cisterns are in place as a result of our action plan How many? No |

**Continued on the next page.**

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

|  |  |
| --- | --- |
| 10. Does the school use native grasses, trees, shrubs and flowers in its landscape design? |  This practice was in place prior to the auditsThis practice is in place as a result of our action plan Estimate % of native plants No |
| 11. Do any parts of the school grounds use xeriscaping, have installed rain gardens or bioretention ponds? |  These water conserving practices were in place prior to the audits These water conserving practices are now in place as a result of our action plan Estimate % No |
| 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 theteam’s action plan. |  |

**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?

### 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.