



# EARTH GUARDIANS

## SCHOOL ENVIRONMENTAL AUDIT



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Here are instructions on how to perform an Environmental Audit at your school. Have your teachers work with you and help with our “Tips”. Then, use our “Worksheets” to audit your school!

The Audit Worksheets (waste, energy, water and cleaning products) are for students working in pairs or groups, with some adult assistance.



## STEPS FOR AUDITING YOUR SCHOOL

1. Explain that you will be doing an audit to see how environmentally friendly your school is in regards to waste, energy, water and cleaning products.
  2. Break your class into teams or pairs and hand out the worksheets. Go over the worksheet as a class to see if there are questions.
  3. Assign the students to different rooms, for example, the gym, the offices, the classrooms, the playground, the lunch area, or bathrooms. Have them take their worksheets to their assigned room to fill out the audit.
- It can be helpful if there is an adult helping each group. Ask for parent volunteers or other teachers who might be interested in helping. Give them a set amount of time to do the audit.
4. After the students have filled out the worksheets you will need to gather all of their data by tallying all of the info they have gathered. You can have them do this in their individual groups or as a class by raising hands and having a spokesperson/reporter for each group.

5. Once you have collected your data, you are ready to discuss and analyze the meaning of your results and brainstorm action plans. There are lots of ideas for actions online if you need help getting started. The audit is the groundwork for the changes that need to be made to make the school more sustainable and environmentally friendly.

Example: If your audit indicates that many lights are left on when no people are in the room and there are no signs reminding people to turn off the lights, have students brainstorm ways to get people to turn off the lights.



# ENVIRONMENTAL AUDIT TOPICS

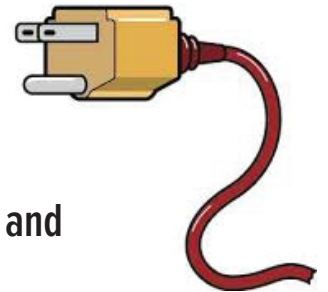
There are many topics to be aware of when auditing your school. Check out this Table of Contents as a guide to use throughout you audit.

## 1 Waste & Recycling

How recycling helps combat climate change

## 2 Energy

Tips to save on energy use, and learning about alternative energy



## 3 Water

Water use inside your school and outdoor watering tips



## 4 Cleaning Supplies

Chemicals to be aware of, and their alternatives  
And, a note about pesticides



# WASTE & RECYCLING TIPS

Recycling is very important because waste has a negative impact on the environment. Rubbish in landfill sites releases dangerous chemicals and greenhouse gases. Recycling helps to reduce the pollution caused by rotting waste.

When we recycle we reduce the need for extracting (mining, quarrying and logging), refining and processing raw materials, helping preserve and protect our precious natural resources. Recycling also saves energy and reduces greenhouse gas emissions.

## TIP 1

**If there are not recycling bins in every room of your school, please encourage your administration to invest time and energy to implement a school-wide recycling program! You can get a list online from your local recycling center to find out what can be recycled and what can't.**



Using recycled paper is important because it uses less energy and water, and produces lower carbon emissions than the manufacturing of non-recycled paper. It also reduces the amount of waste going into the landfill – as paper can be recycled 4 to 5 times.

**Even better than recycling is reducing your paper use!**

Save trees! Trees are the lungs of the earth and without trees our carbon emissions continue to sky rocket, making climate change worse. Paper production accounts for around 40% of tree-logging each year.

## TIP 2

**Encourage your school to buy only recycled paper to print on, and to use both sides of every sheet when printing.**



Toilet paper comes from trees as well! Toilet paper wipes out 27,000 trees a day. Worldwide, the equivalent of almost 270,000 trees is either flushed or dumped in landfills every day and roughly 10 percent of that total is attributable to toilet paper, according to the latest issue of World Watch magazine.

## TIP 3

**Posting signs in the bathroom stalls reminding students that toilet paper comes from trees is a way to encourage less toilet paper use. This helps save trees!**



# WASTE & RECYCLING WORKSHEET

Use this checklist to see how well your school is recycling!

1. Do you have recycling bins in your classroom and if so how many? \_\_\_\_\_
2. What is in the recycling bins? Can you recycle:  
\_\_\_ Paper     \_\_\_ Metal     \_\_\_ Glass     \_\_\_Plastics
3. How many garbage cans are in the room? \_\_\_\_\_
4. Are there things in the garbage can that don't belong there, because they are recyclable or compostable?  
(ask an adult to help with this).  
\_\_\_ paper, cardboard     \_\_\_ cans     \_\_\_ plastic bottle     \_\_\_ food scraps
5. In the recycling bin, is there a lot of paper that is only written on one side?  
\_\_\_Yes \_\_\_No
6. Is there a place to keep paper that only has used one side so it can be reused?  
\_\_\_Yes \_\_\_No
7. Does the school use recycled paper for printing?  
\_\_\_Yes \_\_\_No
8. Are all papers and handouts double-sided, meaning both sides of every sheet of paper is used for printing?  
\_\_\_Yes \_\_\_No
9. Are there signs in the bathrooms asking people to use less toilet paper to save trees?  
\_\_\_Yes \_\_\_No



# ENERGY TIPS



## TIP 1 Turn off the lights

Have students turn off lights when a room is not in use. Lighting accounts for nearly 50% of electricity used in most schools. This not only costs the school money, but it also has a negative impact on the environment, depending on the source of the energy (ie coal, gas, nuclear, oil etc).

If a room is going to be empty for a while the lights should be turned off, even if you are using energy-efficient fluorescent lights.

One way to make sure lights are turned off when not needed is to form a student energy patrol to check classrooms, the cafeteria, the auditorium, etc. Have students make signs and stickers to remind people to turn off the lights when they leave a room.

Students can conduct an experiment in classrooms by turning on and off different light groups and surveying comfort at different lighting levels.



## TIP 2 Turn off electronics

Check to see if your school computers have power-management features. If so, make sure controls are set so they will go into "sleep" mode when not in use. Be aware that screen-savers don't save energy, only sleep mode does.

Encourage students to turn off monitors that will not be used for the next class period.

## TIP 3 Help your teachers

Giving teachers a shutdown checklist with easy steps to save energy while gone will act as a good reminder of how they can take action to reduce energy use.

Some tips can include: Turning off the lights, turning off the ventilation or adjusting it so it uses the least amount of energy, closing blinds, turning off all computers, and unplugging all appliances.

## TIP 4 Temperature

It takes a lot of energy to heat and cool school buildings, however indoor temperatures must be comfortable so teachers can concentrate on teaching and kids can concentrate on learning.

Change the thermostat settings in rooms to 78 during warmer months and 68 during cooler months. Using fans can make people feel a lot cooler, and use much less energy than air conditioning.



# ENERGY TIPS

## Air Conditioning

Make sure there are no blockages of airflow around the vents.

Check to see if any books or furniture are blocking the vents in your classroom. Keep bookcases and other bulky items away from the heating and cooling units so they don't block and/or absorb the warm (or cool) air coming from the ventilation system.

Encouraging everyone to keep doors and windows closed when heating or air conditioning is running will also conserve energy.



Conditioned Air can leak through holes, cracks, and windows. On hot days, these leaks waste a lot of energy as cool air seeps outside and on cold days making it harder for the ventilation system to keep the school warm.

If you find air leaks in your classroom windows report them to the school so they can seal the holes or cracks around walls, ceilings, windows, and doors that leak air into or out of the school.

## Learning about Alternative Energy



The use of traditional energy sources like gas and oil is overloading our atmosphere with carbon dioxide and other global warming emissions. In the United States, about 29% of global warming emissions come from our electricity use. The gases that are released when oil/gas is burned acts like a blanket, trapping heat in the atmosphere of the earth, driving up temperatures and creating global warming. The result is a web of significant and harmful impacts, from stronger, more frequent storms, to drought, sea level rise, and disturbance on the life cycles of many plants and animals.



In contrast, most renewable energy sources produce little to no global warming emissions. Even when including “life cycle” emissions of clean energy (ie, the emissions from each stage of a technology’s life—manufacturing, installation, operation, decommissioning), the global warming emissions associated with renewable energy are minimal.

## TIP 5 Solar Panels

Solar panels generate electricity by converting sunlight into usable energy. They are the most available way to acquire alternative energy.

See if you and your parents and teachers can hold a school fundraiser to help purchase and install solar panels.



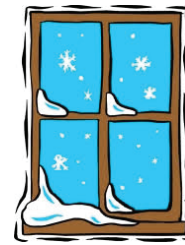
# ENERGY USE WORKSHEET

How efficiently is your school using energy? This audit will help you measure the impacts of your actions on saving energy.



1. When you go into empty classrooms are the lights on or off?  On  Off
2. Who turns off the lights in the room when students leave, or are they left on all the time? \_\_\_\_\_
3. Are there signs to remind students and teachers to turn off the lights when no one is in the room?  Yes  No
4. If there are windows in the room, do you leave the lights off when natural sunlight fills the room?  Yes  No

5. Are any of the windows allowing cool or warm air to escape?  Yes  No
6. Do all the windows close all the way or do some have air leaks?  Yes  No



7. Are computers/printers/equipment turned off at the end of the day?  Yes  No  
(Students should not turn off computers and equipment themselves. This should be left up to teachers or staff to do. There may be reasons why they are left on, so make sure a teacher is in charge of turning off technological equipment.)
8. How many phone chargers, tv's or other equipment are plugged in when not in use? Equipment left plugged in when not being used still uses energy. \_\_\_\_\_
9. Is there a thermostat in the room?  Yes  No If yes, at what temperature is it set? \_\_\_\_\_
10. Are the air vents in the room being blocked by anything?  Yes  No
11. Are there any solar panels being used at your school?  Yes  No
12. Do you know if solar panels or wind turbines will be installed at your school in the near future?  Yes  No



# WATER USE TIPS



**TIP 1** Look at your school faucets and water fountains to see if there any leaks or toilets that keep running after being flushed.

If you find leaky faucets or water fountains report them to the school maintenance people to be repaired so water is not being wasted.

Placing signs near bathroom sinks to remind students to completely turn off faucets is another way to ensure that every drop of water is preserved.

## Water Bottle Refill Stations

Tons of plastic is created and wasted each year for single use water bottles. It takes fossil fuels to create plastic water bottles, which releases carbon into the environment.



There are also harmful chemicals that are released from the plastic into the water, which have negative effects on health in the long run.

**TIP 2** Ask your school to provide filtered water stations so students can refill their water bottles instead of throwing away single use containers. This will reduce the plastic that ends up in landfills.

## Water Flow Rates

On many sink faucets there should be a small piece at the end of the faucet called an aerator. Have your teacher help check the flow rate of your aerators on bathroom sinks. Most aerators will have the flow rate printed on their side in gallons or liters per minute.

In case the flow water rate is not printed on your school aerators, there are other ways to discover how much water is being used per minute. Flow rates on taps can be checked by measuring how many liters of water flow out in one minute with the tap on full. See instructions on our water use worksheet.

Nine liters or less per minute is very efficient. 15 liters or more per minute is an energy and water hog! To reduce the amount of water coming out of the faucet, encourage your school to put low-flow aerators on all of the faucets. This reduces the amount of water being wasted.

Also, low-flow showerheads for gym showers are available that use only 2.5 GPM or less. If your flow rate is in excess of 2.5 GPM, energy can be saved by changing the shower heads. The same is true for automatic sink sensors, which conserve sink water and reduce cost and usage over a longer period of time.



## The Outdoors

**TIP 3** Catching rainwater in large barrels is a great way to save on school water use. If your school has a garden, decorative plants, or uses water for lawn landscaping, water caught in rain barrels is a great alternative to pulling water from the city, a well or a spring.

**TIP 4** If your school has ornamental plants as part of the outdoor landscaping, encourage them to start planting low-water plants. These are plants that take very little water to survive.





# WATER USE WORKSHEET

## General School Water Questions

1. Where does your water come from? The city water supply, well water, spring water? \_\_\_\_\_
2. Has your water been tested for chlorine, fluoride, other chemical contaminants, bacteria or heavy metals? \_\_Yes\_\_No  
If so what are the results? \_\_\_\_\_
3. Is the drinking and cooking water for your school filtered? \_\_Yes\_\_No

## Bathrooms

1. Do any of the faucets in the bathroom leak? \_\_Yes\_\_No
2. Are there signs reminding students to turn off the water in the bathrooms? \_\_Yes\_\_No
3. Do any of the toilets continue to run after being flushed? \_\_Yes\_\_No
4. Are the urinals in the bathroom waterless? \_\_Yes\_\_No
5. Are any of the school water fountains leaking? \_\_Yes\_\_No
6. Does your school have water bottle refill stations? \_\_Yes\_\_No
7. What kind of shower heads are in the gym bathrooms?  
\_\_\_\_\_

8. What is the tap water flow rate out of the sinks in the bathrooms? \_\_\_\_\_

Use a one liter container in the school gym showers or a sink to determine the flow rate in liters per minute. To measure the flow rate, turn on both the hot and cold water and adjust the temperature of the water and the flow to the temperature at which you would normally shower or wash your hands.

Note the time on a watch (with a second hand) and fill the one liter bucket, recording how much time it takes to fill in seconds.

1 liter shower/sink water = \_\_\_\_\_ seconds. Divide this number by one and multiply the result by 60 to get liters per minute = \_\_\_\_\_GPM.

## Outdoor Water Questions

1. Are there any rain barrel catchment systems setup? \_\_Yes\_\_No  
If yes, what is the water used for? \_\_\_\_\_
2. Is drip irrigation used to water the outdoor plants? \_\_Yes\_\_No
3. What time of day is the garden watered? \_\_\_\_\_
4. Walk around the schoolyard and check out the plants. Ask a teacher if there are any plants that require less water in the schoolyard? (These are called drought-tolerant plants).  
\_\_Yes\_\_No

# CLEANING SUPPLIES TIPS

Many commercial cleaning products used in schools have strong chemicals in them. The impact of commercial, chemical-based products can be high, including long-term health concerns for people, and environmental pollution.

In the U.S., for example, 1 in 3 people suffer from allergies, asthma, sinusitis or bronchitis potentially caused by pollutants in the environment, including cleaning products! Treatment for these conditions should include reducing synthetic chemicals used in school products.

Below is a list of various chemicals to look out for when investigating your schools cleaning product ingredients. Note which chemicals you find in your school cleaning products.

- ✓ **Phthalates:** found in many fragranced household products. They are endocrine disrupters.
- ✓ **Perchloroethylene or “PERC”:** found in dry-cleaning solutions, spot removers, and carpet and upholstery cleaners. It is a neurotoxin.
- ✓ **Triclosan:** found in most liquid dishwashing detergents and hand soaps labeled “antibacterial. It is an aggressive antibacterial agent that can promote the growth of drug-resistant bacteria.
- ✓ **Quarternary Ammonium Compounds, or “QUATS”:** found in fabric softeners, liquid and sheets, and most household cleaners labeled “antibacterial.” Is another antimicrobial and can also promote the growth of drug-resistant bacteria.
- ✓ **2-Butoxyethanol:** found in window, kitchen and multipurpose cleaners. Can cause sore throats, narcosis, pulmonary edema, and severe liver and kidney damage. It is not required by law to be listed on the product.
- ✓ **Ammonia:** found in polishing agents and glass cleaners. It is a powerful irritant for everyone, and especially if you have any type of lung issue.
- ✓ **Sodium Hydroxide:** found in oven and drain cleaner. It can burn skin and cause a long lasting sore throat.



# CLEANING SUPPLIES TIPS

## Alternative Cleaning Agent Ideas



Most modern synthetic cleaning products are based on age-old formulas using natural ingredients that were passed down through the generations because the chemistry was right. Going back to the original, naturally derived ingredients is a way to make cleaning products that work, don't pollute and save your school money.

Making cleaning products for your school to use is a fun way to get engaged in making your school a safer, healthier and more environmentally friendly place. Here are some easy to find ingredients for making natural, healthy cleaning products!

Have fun researching how to create the perfect recipes for the exact natural cleaning product you want to create!

**Vinegar:** White vinegar is effective at dissolving grease and makes a great surface cleaner in the kitchen and bathroom. Vinegar works well because of its acidic nature and antibacterial effect. For best results mix 1 of vinegar with water in a container or spray bottle and use it to clean windows and mirrors to toilets and floors.

**Baking Soda:** Baking soda deodorizes and has an abrasive quality that outshines toxic, powdered cleansers. Use on surfaces in the bathroom and kitchen to remove stains or even clean the inside of a messy oven when used with vinegar to make a paste. Adding salt can provide a boost in scrubbing power.

**Lemon Juice:** The inclusion of lemon in many commercially available cleaning products is one rare area where they got it right! Lemon juice kills mold, cuts through grease, and leaves a streak-free shine.

**Castile Soap:** Castile soap is a natural liquid or hard soap made from vegetable oils. The first Castile soaps were made with the local olive oil and contained no tallow, or rendered animal fats. Today, Castile soap appears in many stores, often scented with essential oils, as a multipurpose cleanser.

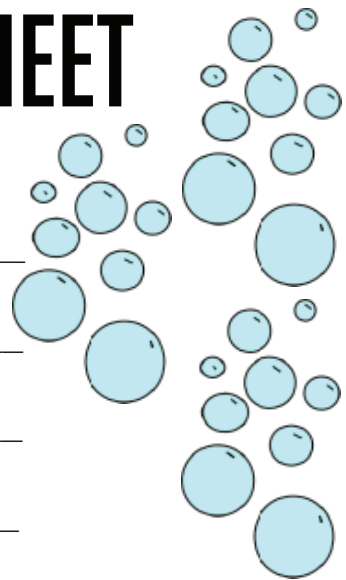
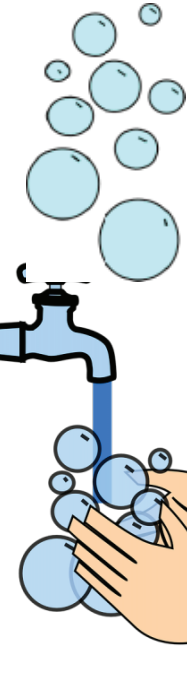
**Olive Oil:** Polishing wood with olive oil and lemon juice moisturizes it and provides amazing shine with a fresh scent. Blend 1 cup of olive oil and 1/2 cup of lemon juice in a spray bottle, mist onto a soft cloth and polish wood furniture the natural way.



**TIP 1** Meet with your janitors to have conversations about replacing school cleaning agents



# CLEANING SUPPLIES WORKSHEET



1. What kind of cleaning products are used to clean the floors?  
\_\_\_\_\_
2. What is used to clean the windows? \_\_\_\_\_
3. What is used to clean and disinfect the bathrooms? \_\_\_\_\_
4. What is used to clean counters, desks and tables? \_\_\_\_\_
5. What kind of hand soap is being used in the bathrooms? \_\_\_\_\_

## A note about Pesticides

Pesticides often get sprayed on lawns, parks and golf courses. While the goal is to make these green spaces more pleasant places to play with fewer bugs and fewer weeds. These treatments are now being scientifically proven to be quite dangerous.



In addition to killing weeds and bugs, pesticides also pose serious health hazards. You can be exposed to these chemicals just through normal daily activities.

It is advised that people stay off of lawns for as much as 3 days after spraying.

1. Are the lawns, gardens or playgrounds sprayed with pesticides?  
If so what is being sprayed? \_\_\_\_\_
2. How often are the lawns being sprayed? \_\_\_\_\_
3. Is the spraying happening when kids are in class? \_\_\_\_\_





# CONGRATULATIONS ON AUDITING YOUR SCHOOL!

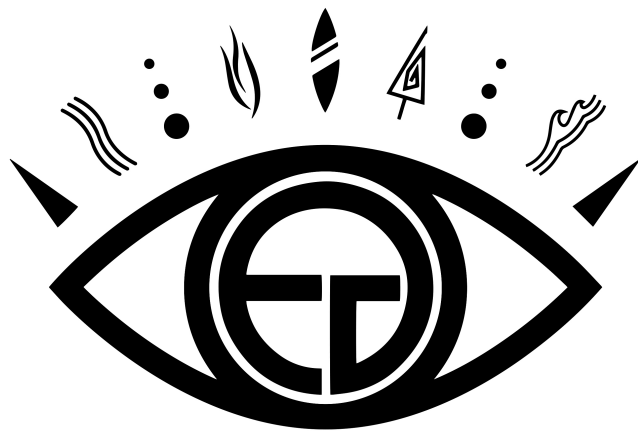
## Thank you for being the change!

Earth Guardians is here for you as you continue to find ways to step up and take action to create a more sustainable world.

Check out our website at [www.earthguardians.org](http://www.earthguardians.org) to learn about what you and your community can do to impact climate change.

As you get more involved in environmental sustainability, check out our 50 Simple Things list that you can do to create change every day at [www.earthguardians.org/50simplethings](http://www.earthguardians.org/50simplethings), as well as our Home Audit at [www.earthguardians.org/audit](http://www.earthguardians.org/audit).

We look forward to being apart of your journey to protect our planet and our future!



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