



An Eco-Student's Guide to

# A HEALTHY SCHOOL



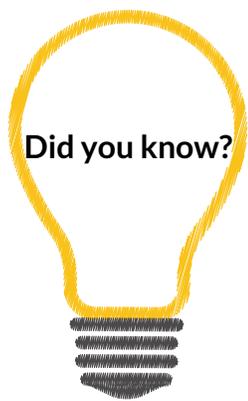
Healthy Schools Pennsylvania, a program of Women for a Healthy Environment, recognizes schools that take steps to achieving a Green and Healthy learning environment. This workbook is to be used as a guide for students in learning about the factors that create a Healthy School.

# WELCOME TO YOUR WORKBOOK!

Dear Eco-Student,

This workbook is a tool to help you investigate and learn about the different ways your school interacts with the environment. Our school building and the ways we use it can impact both our planet and our health in different ways.

In other words: **when we protect our environment, we are also protecting our health.**



**Luckily, schools have students like YOU that can help!**

Across the country, schools are working towards a *sustainable* future. **Sustainability** in schools means using practices that meet our current needs without making it more difficult for people in the future to meet their own needs. Schools can make huge impacts on our environment due to their size, because it takes a lot of resources to keep our school buildings running, such as energy that comes from *renewable* and *non-renewable* sources, water that comes from our local rivers, and food to feed every student. When we think about these resources, we have to make sure we're leaving enough behind for future generations to use too!

This workbook will not only help you determine the ways your school is impacting the environment, but also spark your own ideas for eco-friendly changes you can make in your home, classroom, school, and community. Even small actions, such as switching out light bulbs for more efficient ones, can make a HUGE difference! Every sustainable act is a step in the right direction for a sustainable future.





# AIR QUALITY



What's the *air quality* reading for today?

Good

Moderate

Unhealthy for Sensitive Groups

Unhealthy

Very Unhealthy

Hazardous

Lets take a look at what these readings mean:

**Good:** The air quality is healthy and will not have any negative effects on our health.

**Moderate:** The air quality is acceptable, but there is some pollution in the air that might effect a small number of people.

**Unhealthy for Sensitive Groups:** There is enough pollution in the air that people in sensitive groups (people with lung disease, children, and older adults) may have some health effects.

**Unhealthy:** There is enough pollution in that air that everyone may experience some health effects.

**Very Unhealthy:** Pollution in the air is bad, and everyone may experience serious health effects.

**Hazardous:** Pollution in the air is very bad and may create emergency conditions. The entire population will probably experience serious health effects.

Make a *hypothesis* about what factors might be effecting your air quality:

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When the air quality is unhealthy, do you stay inside for recess?

YES

NO

When it's really hot outside, do you stay inside for recess?

YES

NO



# AIR QUALITY



Let's investigate your school building!

Can you find a vent in every room in your school that is occupied by people?

If **NO**, take note of which rooms did not have vents:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

YES

NO

Are the vents clear of other objects that might block air flow?

If **NO**, which vents were blocked? What was blocking them?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

YES

NO

How does the air flow of the vents feel?



Does your school have an anti-idling policy?

YES

NO

Let's go outside!  
Find out where the vents are located on the outside of the building (this is where your indoor air comes from!)

Are the vents clear of debris that might block air flow?

If **NO**, what is blocking the outdoor vents?

YES

NO

Busy Roads



Leaves



Garbage



Does your school have walk-off mats at entrances to prevent dirt from coming in?

Does your school have a tobacco-free policy?

YES

NO

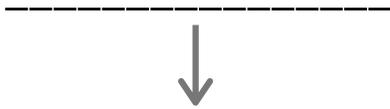
YES

NO

# INTERVIEW AN EXPERT: YOUR CUSTODIAN

How many of the products that you use are labeled with words like "caution", "danger", or "harmful"?

How many of the products that you use have eco-labels like "EcoLogo" or "GreenSeal"?



Where are these products used?

How are chemicals stored?

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When are these products used?

How often are the school's air filters replaced?

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Do you ever get headaches, a runny nose, or watery eyes when cleaning?

Does our school use scented soap?

YES

NO

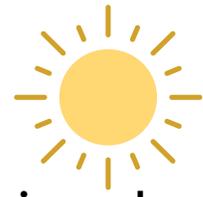
YES

NO

Be sure to thank your custodian for all the work they do to keep your school clean!



# ENERGY



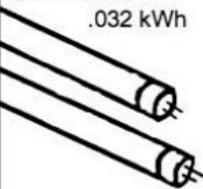
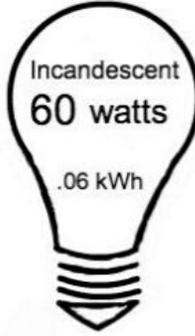
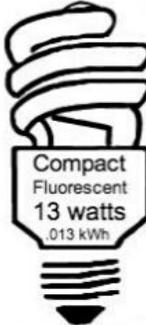
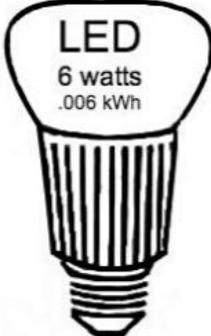
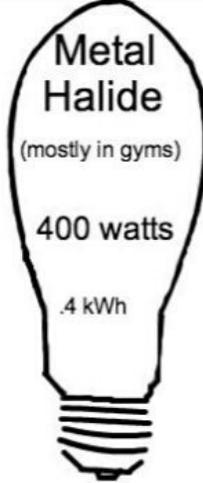
Let's investigate your classroom to find out how much energy is used every day!

## LIGHTING

How many light bulbs or light tubes are in this room?	A
How many hours are the lights ON each day? (you may need to estimate)	B
Find the type of light pictured below and enter the amount of energy (watts) it uses here	C
Find the total energy used by the lights using this equation: <b>A x B x C</b>	<b>Total energy used for lighting (watts/hour)</b>



Which light is it?

<p><b>Fluorescent Tubes</b> 32 watts .032 kWh</p> 	<p><b>Incandescent</b> 60 watts .06 kWh</p> 	<p><b>Compact Fluorescent</b> 13 watts .013 kWh</p> 	<p><b>LED</b> 6 watts .006 kWh</p> 	<p><b>Metal Halide</b> (mostly in gyms) 400 watts .4 kWh</p> 
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# ENERGY



## VAMPIRE ENERGY

Some devices use energy even when they are turned off. These devices are sometimes called “energy vampires.” We may be able to save energy if we unplug these electronics when we are not using them.



Find the number of electronic devices you see in the classroom. Next, find out whether each device is left on in “active” mode overnight, put to “sleep,” or turned completely “off” or unplugged. Look at the table below for help.

MODE	
“Active”	Device is on and being used. (Example: a DVD player playing a movie.)
“Sleep/Standby”	Device is in low-power mode. (Example: DVD player is on but not playing a movie.)
“Off”	Device is turned off but still plugged in and ready for action. (Example: DVD player is turned off but could be turned on by remote control.)
“Power strip/ Unplugged”	Device is plugged into a power strip, which is turned off at the end of the day. (Example: DVD player is receiving NO power.)

Device	How many devices are left in each mode at the end of the day?				Energy in use	Vampire energy	Total watts
	“Active”	“Sleep/ Standby”	“Off”	“Unplugged/ Power strip”			
Television 					300 watts	50 watts	
Printer 					35 watts	5 watts	
Projector 					800 watts	8 watts	
Laptop Computer 					45 watts	5 watts	
Desktop Computer 					250 watts	83 watts	
DVD Player 					60 watts	10 watts	
Smart Board 					220 watts	20 watts	



# ENERGY



## HEATING

It takes a lot of energy to keep schools warm when it is cold outside. If we wear a sweater or keep doors and windows closed when it is cold outside, we may need to use less heat in the classroom and we might save some energy!

Is there a thermostat we can change in the classroom?	<p style="text-align: center;">YES <span style="margin-left: 150px;">NO</span></p>
What temperature is the thermostat set to for...	<p> Cold weather? _____</p> <p> Warm weather? _____</p>
Do staff try to keep the classroom windows and doors shut in the winter?	<p style="text-align: center;">YES <span style="margin-left: 150px;">NO</span></p>
<p>What direction are the windows facing?</p> <p>(Circle one in the picture on the right)</p>	<div style="display: flex; align-items: center;"> <p>The sun rises in the <b>east</b> and sets in the <b>west</b>. We get the most sunlight from the <b>south</b> and have the most shade on the <b>north</b> side of homes, buildings and trees.</p> </div>
Feel closely: Do you notice a draft near the edges of the window?	<p style="text-align: center;">YES <span style="margin-left: 150px;">NO</span></p>
How is the school heated?	<div style="display: flex; flex-wrap: wrap; justify-content: space-around;"> <div style="text-align: center; margin: 5px;">  Electricity         </div> <div style="text-align: center; margin: 5px;">  Natural gas         </div> <div style="text-align: center; margin: 5px;">  Geothermal         </div> <div style="text-align: center; margin: 5px;">  Steam/boiler         </div> </div>

# HEALTH AND WELL- BEING



Do you have recess everyday?

YES

NO

My school has a....  
(circle all that apply)

Playground



Field



Gym



How many minutes long is recess?

\_\_\_\_\_

How many times a week do you have  
Physical Education (P.E.)?

\_\_\_\_\_

I feel like recess should be....  
(circle one)

SHORTER

THE SAME  
AS IT IS NOW

LONGER

What activities do you do when you have  
indoor recess?

\_\_\_\_\_

\_\_\_\_\_

In the space below, draw your favorite game to play during recess!



# INTERVIEW AN EXPERT: YOUR SCHOOL NURSE



What healthy habits are our school good at encouraging?  
(circle all that apply)



Drinking water



Healthy food choices



Time outdoors



Daily exercise



Good hygiene

What is the most common health complaint students have?

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What is the most common injury students have?

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What is the most common sickness in our school?

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About what percentage of students have *asthma* in our school?

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What would you like our school to do to keep our students and staff healthy?

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What can students do to keep our school healthy?

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Be sure to thank your nurse for all the hard work they do to keep you and your classmates safe, healthy, and happy!



# TRANSPORTATION



Take a class survey to find out how everyone gets to school!

How many people in your class....



Bike to school?



Ride in a car to school?

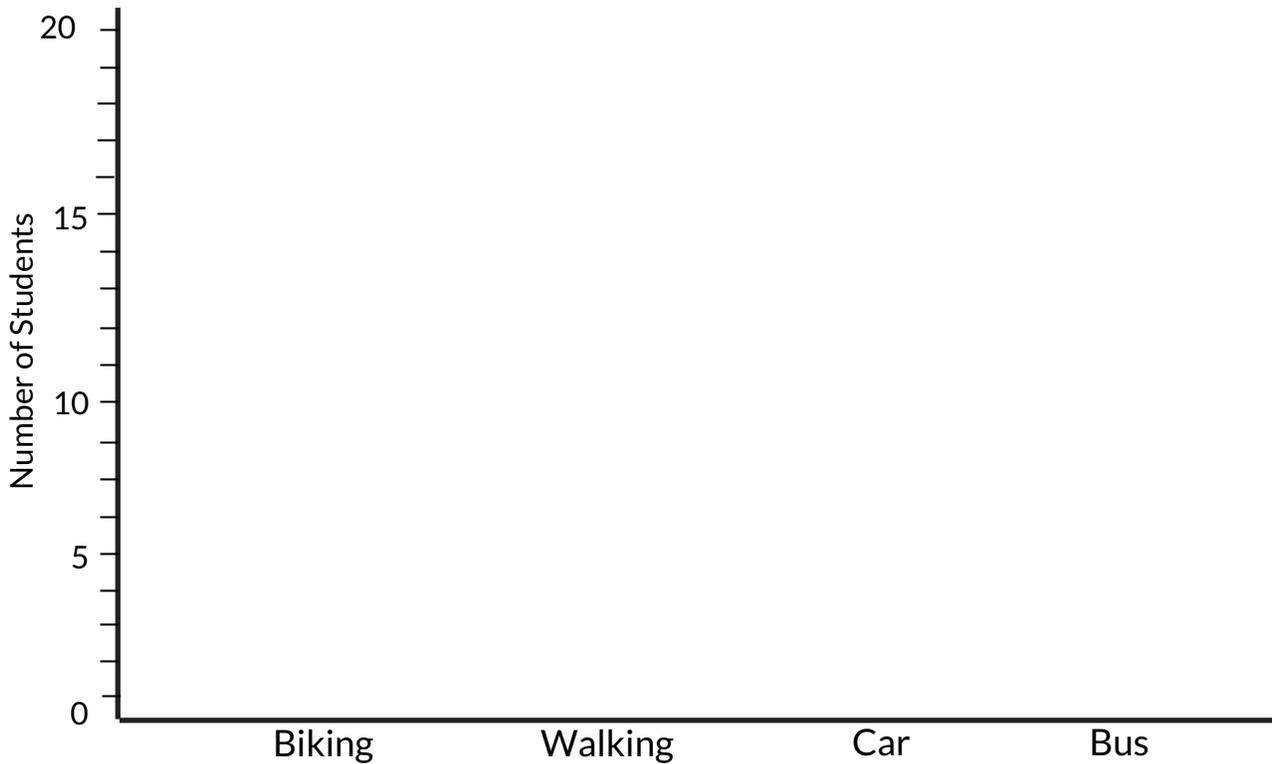


Walk to school?



Take the bus to school?

Fill in the graph below with your class results!



Ask someone who bikes to school:

How many days a week do you bike to school?

\_\_\_\_\_

Are there bike lanes for you to use?

YES

NO



# TRANSPORTATION



Ask someone who walks to school:

How many days a week do you walk to school?

\_\_\_\_\_

Are there safe sidewalks on your way to school?

YES

NO

Do you have to cross the street without crosswalks on your way to school?

YES

NO

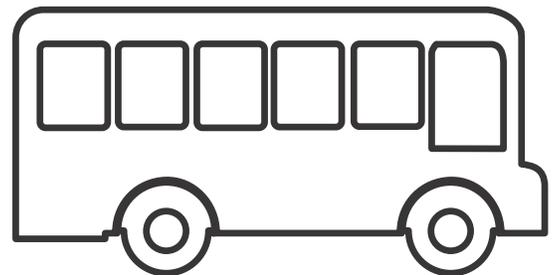
Draw a picture of a new way to get to school!

Ask someone who take the bus to school:

How many seats on the bus are taken in the morning?

\_\_\_\_\_

Color in the school bus to show how full it is in the morning!



Ask someone who rides in a car to school:

Do you ride with another student?

YES

NO

How many minutes long is your drive to school?

\_\_\_\_\_



# CONSUMPTION AND WASTE



Does your school have a *recycling* program?

YES

NO

If YES, circle all the materials your school recycles:



Paper



Glass



Plastic



Electronics



Cardboard



Metal cans



School supplies



Printer cartridges

Does your school have a *compost* system?

YES

NO

Does your school have water bottle re-fill stations?

YES

NO

Are there vending machines in your school?

YES

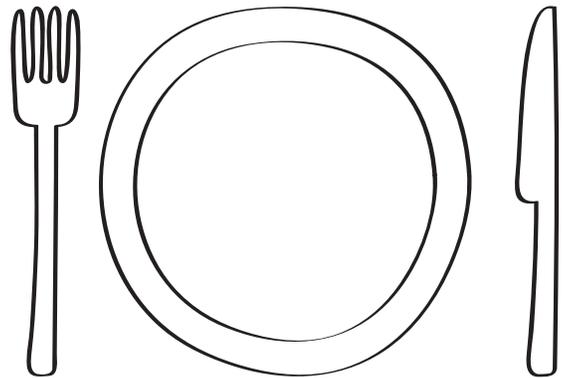
NO

What do they serve?

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Color in the plate below to show how much of your lunch you eat everyday:



What do you do with the food you don't eat?



Throw it away



Share with a friend



Save it for later

# INTERVIEW AN EXPERT:



## CAFETERIA MANAGER



What fresh food is available to students?

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How is food prepared? Is it prepared in school or delivered?

---

Of the food provided every day, what percentage is typically wasted?

---

What is the most commonly wasted item?

---

Could some of our food waste be composted?

YES

NO

Why is food wasted in our school?  
(circle all that apply)

Not enough time to eat

Time of day that food is served

Portion size

Dislike of food

What is something we can do to reduce food waste at our school?

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# WATER

Let's find out how much water your school uses!

## PART 1. Reading Water Meters

### Finding the Meter

Ask for help finding your school water meter. You can usually find your meter located near the edge of school property and close to the street. Larger schools may have more than one meter. The area around your water meter should be clear but be careful of dangerous plants or insects.

### Reading the Meter

The dial on the water meter will look something like the picture on the right.

The numbers on the dial record how much water has been used since the meter was fitted. Read the numbers from left to right. The black numbers show kiloliters (1kL= 1,000 liters) and the red numbers show liters.

The reading on this meter is 42,912 liters or almost 43 kiloliters.



Read the school water meter over the next twelve days to see how much water, in kiloliters, is used from the water supply. Record your observations in the table below.

**It is important to record at the same time each day!**

	Date of meter reading	Reading at start of day	Reading at end of day	Water use for school day (end of day minus start of day)	After-hours water usage for school day*	Total water consumption for the day (kL)
M				kL		kL
T				kL	kL	kL
W				kL	kL	kL
T				kL	kL	kL
F				kL	kL	kL
Weekend Water Use →		Friday's afternoon reading	Monday's morning reading	Total weekend water use kL	Total water consumption for week one →	kL
M				kL	kL	kL
T				kL	kL	kL
W				kL	kL	kL
T				kL	kL	kL
F				kL	Total water consumption for week two →	kL
						kL

\*To find the after-hours water usage, subtract the recording at the end of the day from the recording of the start of the next school day

# WATER

School Information	
How many students are at your school?	
How many adults (teachers/staff) are at your school?	
Total people at your school	

Reading Results		
	Volume of water used during the week (kL)	Water use per person (liters)
WK 1	kL	L
WK 2	kL	L

## PART 2. Toilets at School

Complete the following toilet use survey to find out how much water is used for flushing toilets on a school day.

1. How many toilets are in the school?

**Boys'** \_\_\_\_\_

**Girls'** \_\_\_\_\_

**Other**  
(staff, gender neutral) \_\_\_\_\_

2. Are they single-flush or dual-flush?  
(please check off one)

**Single-flush**  
(one lever)

**Dual-flush**  
(two buttons)

3. How many urinals are at the school?

How are they operated?  
(please check off one)

**Sensor**

**Push-Button**

**Timer**

**Lever**

4. Use the chart below to determine how many liters of water the school would use for flushing toilets if each student used the restroom once in day?

Single-flush
Single flush toilets use 15 liters of water
Dual-flush
<b>Half flush</b> Dual-flush toilets use 4.5 liters per half flush
<b>Full flush</b> Full flush toilets use 9 liters per full flush

5. How many liters of water would the school use for flushing toilets in one week?

liters

Hint: multiply your answer in #4 with the number of school days per week

liters

# WATER

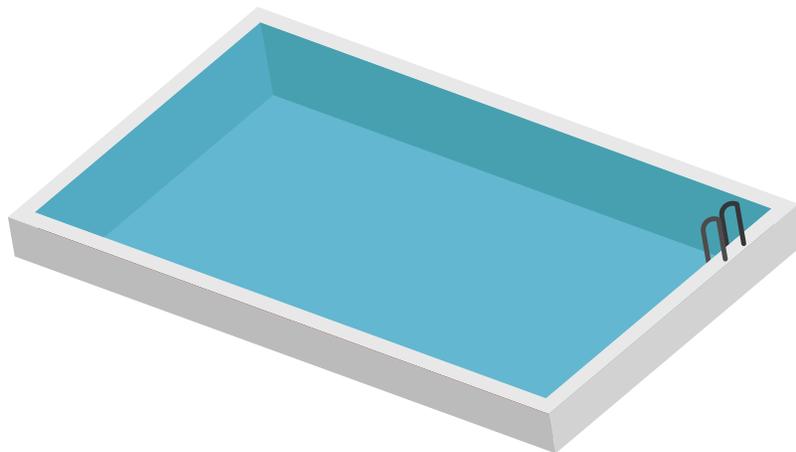


## PART 3. Leaking Tap Investigations

How much water can be wasted in a day with a dripping tap?

Dripping Tap	Total water wasted Liters/hour	How many did you find in your school?	Where did you find them?	Total water wasted Liters/day
	<b>Drip (1 drop per second)</b> = 0.3 liters per hour			
	<b>Steady drip</b> = 4.8 liters per hour			
	<b>Trickle</b> = 16.2 liters per hour			
	<b>Stream</b> = 49.8 liters per hour			

A regular Swimming Pool has 375,000 liters of water in it. Color in the pool below showing how full it would be if it collected water from all leaky taps in 1 day!



# WATER



## PART 4. Irrigation

Investigate the grassed and garden areas of the school to find out how they are watered

Where does your school get water from?



Well



Municipal Water Supply

What type of land is most common on your school grounds?



Grass/Natural Plants



Natural Rocks



Concrete/Asphalt



Turf/Man-made Ground

What is the average rainfall, in inches, for each month of the year, January to December?  
(use this site for help <https://www.usclimatedata.com/>)

January

in. \_\_\_\_\_

February

in. \_\_\_\_\_

March

in. \_\_\_\_\_

April

in. \_\_\_\_\_

May

in. \_\_\_\_\_

June

in. \_\_\_\_\_

July

in. \_\_\_\_\_

August

in. \_\_\_\_\_

September

in. \_\_\_\_\_

October

in. \_\_\_\_\_

November

in. \_\_\_\_\_

December

in. \_\_\_\_\_

# INTERVIEW AN EXPERT: YOUR GROUNDSKEEPER



Does our school have an *irrigation* system to water our school grounds/garden?

Are pesticides used on our school grounds?

Is the irrigation system manual or automatic?

Where are they sprayed?

How often is the system operated?

How often are they sprayed?

What is the total running time for our school irrigation system every day?

Are they sprayed while school is in session?



# SUSTAINABILITY IN THE CLASSROOM



In which classes have you learned about the environment?



Science



Math



History



English



P.E.



Other

In which classes do you wish you learned MORE about the environment?



Science



Math



History



English



P.E.



Other

Do you read books about nature in class?

YES

NO

Do you have guest speakers come to your school to teach about the environment?

YES

NO

Does your school have a garden?

YES

NO

Does your school have an environmental club?

YES

NO

How often do you have class outside?

ALWAYS

(more than once a week)

OFTEN

(once a month)

SOMETIMES

(a couple times a year)

RARELY

(1-2 times a year)

NEVER

(not at all)

# COMMUNICATING AND CHANGE MAKING



Sharing knowledge and ideas helps us to make a difference in our schools and communities!

## PART 1. Air Quality

Go back to the Air Quality section in the beginning of your book and count how many times you answered a YES or NO question with a **green** response!

How many **green** responses did you have? \_\_\_\_\_ /10

If your school scored:



0-3

Your school is off to a great start; every sustainable act counts! You and your classmates can work together to make your school even more **green**!



4-6

Your school is already making a huge effort to be sustainable when it comes to air quality! Pay attention to the questions you didn't have green responses for in order to spark ideas about **eco-friendly** changes you can make!



7-10

Wow! Your school is a sustainable superstar! Now its your turn to get creative in thinking about **MORE** sustainable changes you can make in your school!

What is one question you had a **red** response for that you can change?

Who in your school is in charge of this decision?

Who can you talk to in order to learn more?

Who can support you in making this change?

# COMMUNICATING AND CHANGE MAKING



## PART 2. Energy

Go back to the Energy section of your book to answer the following questions (pages 5-7).



### LIGHTS

Do the lights in your school need to be turned on all day?

YES

NO

At what times of day could the lights be turned off?

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### VAMPIRE ENERGY

How can we reduce energy use in your classroom?

Who in your school is responsible for this decision?

Who can support you in making this change?

How can you get more people involved?

# COMMUNICATING AND CHANGE MAKING



## PART 3. Health and Well-Being



How can you incorporate more exercise into your school day?

Who in your school is in charge of this decision?

Who can support you in making this change?

What do you need to learn more about in order to make your case?

## PART 4. Transportation



How can your school be safer for people that walk and bike to and from school?

How can you encourage more people to walk and bike to school?



# COMMUNICATING AND CHANGE MAKING



## PART 5. Consumption and Waste

How can you reduce food waste in your school?



Who in your school is in charge of this decision?

How can you reduce recycled waste in your school?

What do you need in order to make this change?



## PART 6. Water

How can you reduce water use in your school?



Who controls water in your school?

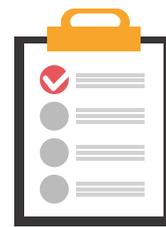
Are there ways you can reuse water in your school?

Who in your school can you talk to about this issue?





# PROJECT PLANNING



Use this section to brainstorm a possible project for your school!

## What environmental issue will your project address?



Air Quality



Energy



Health and Well-Being



Consumption and Waste



Transportation



Water

## How will your project address this issue?

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## Who will be involved in your project? How will they help?

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## In 1-3 sentences, write out the GOAL of your project!

When writing your goal, ask yourself these questions:

- Is this specific?
- Can this goal be measured? Will I know when I've reached it?
- Is this goal realistic? Is it possible for this to be accomplished?
- Is there a day or month that I want to meet this goal by?

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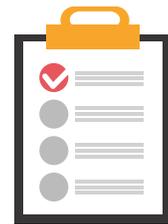
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# PROJECT PLANNING



What are some of the steps you'll need to complete in order for your project to be successful?

**STEP 1**



**STEP 2**



**STEP 3**

**STEP 4**



**STEP 5**

\*Your project might not have exactly 5 steps, and that's okay! Just use this space to think about some of the tasks you'll need to complete for your project.

How will you measure the success of your project?

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# GLOSSARY

If you saw a new word in a previous section, you can find its definition here!

## AIR QUALITY

A measurement of the presence of pollutants in our air.

## ASTHMA

Asthma is a health problem that makes it hard to breathe. This happens because airways in the lungs swell up, fill with mucus, and get smaller.

## COMPOST

Compost is created when organic matter, such as fruits and vegetables, decomposes and breaks down.

## CONSUMPTION

Consumption is what we do when we are using a resource. For example, when the lights are on, we're consuming energy.

## ENERGY EFFICIENCY

Trying to use as little energy as possible to provide products and services.

## GEOHERMAL

A form of energy found stored in the earth.

## HYPOTHESIS

A tentative theory that tries to make sense of the natural world.

## IDLING

Someone is idling their car when they leave the engine running without going anywhere.

## IRRIGATION

The supply of water to land or crops to help growth.

## MUNICIPAL WATER SUPPLY

Provides water through pipes after being processed at a water treatment plant.

## NATURAL GAS

A combination of gasses found naturally underground and used as fuel or energy.

## NON-RENEWABLE ENERGY

Resources we use for energy (such as coal, oil, and natural gas) that cannot be replaced as quickly as we use them.

## RECYCLING

The process of converting waste into materials that can be reused.

## RENEWABLE ENERGY

Resources we use for energy (such as solar and wind) that can be used repeatedly and are naturally replaced.

## SUSTAINABLE

Being able to meet the needs of the present without making it difficult for future generations to meet their own needs.

## THERMOSTAT

A device that allows us to control indoor temperature.

## TURF

A surface of fibers made to look like natural grass.

## VAMPIRE ENERGY

Energy used by electronics when they are turned off, but still plugged in.

## WASTE

Materials discarded after being used.

## WELL

A structure created by digging and drilling into the ground to access groundwater.