

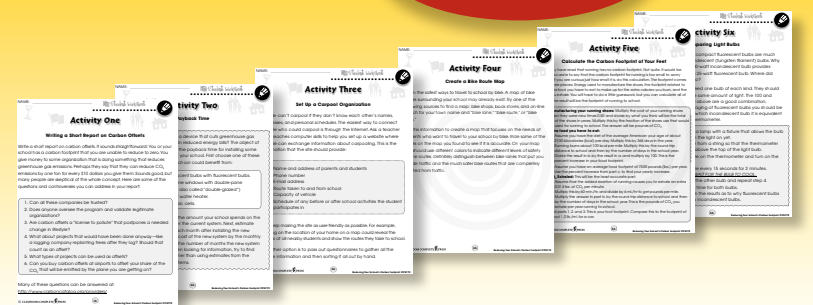
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Reduce What You Can and Offset the Rest

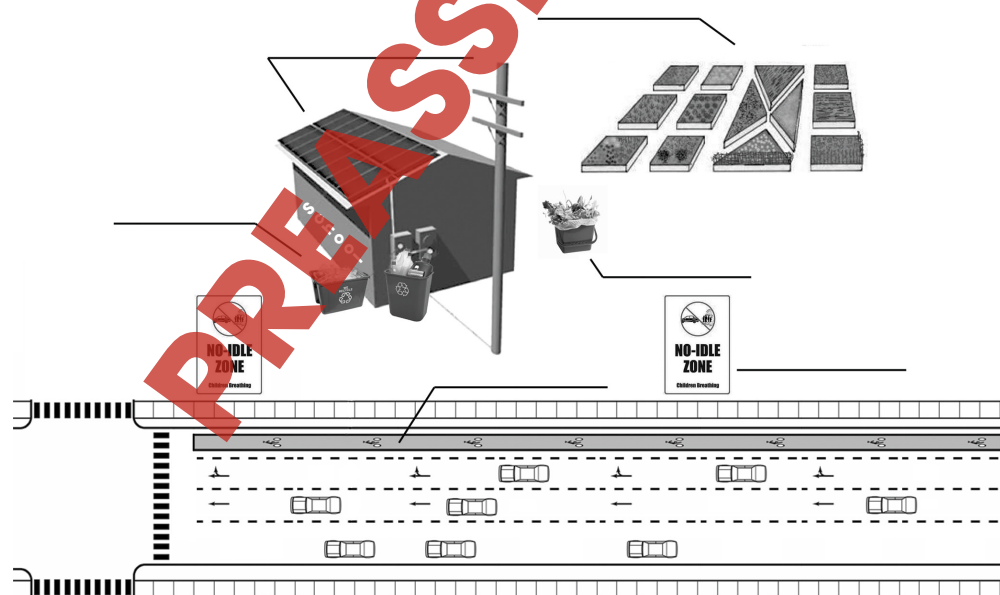
1. Complete each sentence with a word from the list. Use a dictionary to help you.

CO₂ reuse footprint recycle sea reduce

- _____ is good, but _____ and _____ are better.
- Every school has a carbon _____.
- Humans are partly responsible for global climate change because of the _____ we add to the atmosphere.
- Higher global temperature can lead to a rise in _____ level.

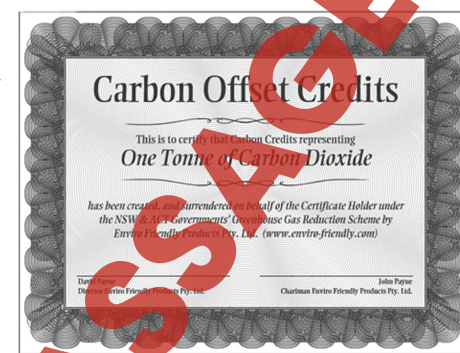
2. Several aspects of a school's attempt to lower its carbon footprint are shown below. Label the diagram using the words in the list.

Compost Bin School Garden Photovoltaic Cells
Recycle Bins Sign For No Idle Zone Bike Lane



Reduce What You Can and Offset the Rest

By now you have come to understand that every person and organization has a carbon footprint and that your school is no exception. You also have seen that CO₂ emitted locally affects everyone on Earth. A school bus idling as students climb aboard is raising global temperature, melting icecaps, raising the ocean level, and threatening to flood a low-lying island 10,000 miles away.



A Carbon Offset Certificate

You can reduce your school's footprint by using energy and materials more efficiently and by reducing, recycling, and reusing school supplies. You can travel to school more efficiently, and you can change cafeteria menus to foods with a smaller footprint.



Explain how your school's carbon footprint can affect someone who lives 10,000 miles away.

You can raise school awareness of climate change by studying carbon footprint issues in many of your classes and by working on projects that reduce the school footprint. You can raise community awareness by promoting carbon footprint fairs and working on environmental projects that are seen by the public.

The title of this section suggests one more thing you can do to reduce your school's footprint. It is possible, at least on paper, to reduce your school's footprint to zero by purchasing something called a **carbon offset**. The idea is to give money to an organization that is doing something to reduce greenhouse gas emissions. Offsets are measured in tons of CO₂ and can be bought for as little as \$10 per ton. A list of places to buy offsets along with prices and discussion of the pros and cons of the offset system can be found online.



Reduce What You Can and Offset the Rest

1. Put a check mark (✓) next to the answer that is most correct.

- Donating money to an organization that works to reduce global warming is a way to buy a
 - A carbon copy.
 - B carbon offset.
 - C carbon footprint.
 - D carbon compound.
- The greenhouse gas humans are most responsible for has the chemical formula
 - A CH₄.
 - B CO₂.
 - C H₂O.
 - D O₂.
- A one-ton carbon offset costs as little as
 - A \$1.
 - B \$10.
 - C \$100.
 - D \$1,000.

2. Circle the word **TRUE** if the statement is TRUE or **Circle** the word **FALSE** if it is FALSE.

- Wood is a fossil fuel.
TRUE FALSE
- Greenhouse gases trap light.
TRUE FALSE
- Photovoltaic cells produce electricity.
TRUE FALSE
- Carpooling reduces students' carbon footprints.
TRUE FALSE
- Everything sent to a landfill gets recycled.
TRUE FALSE



Reduce What You Can and Offset the Rest

3. Answer the questions in complete sentences.

- How are carbon offsets measured?

- Describe something a company might do as a result of your buying a carbon offset from it.

Extensions & Applications

Describe briefly how your school could reduce its carbon footprint to zero.

Calculating Your School's New, Improved Carbon Footprint

Look at each of these possibilities for reducing your school's carbon footprint. Some require money, personal inconvenience, or change of lifestyle. In each case, decide whether students, teachers, and parents would be likely to accept the changes. If it seems likely, do the calculation and record the footprint reduction. Under each heading, changes are arranged roughly in order of expense and difficulty.

Energy Reduction

Replace tungsten bulbs with compact fluorescents for a reduction of 1.0 lb. of CO₂ per Watt replaced. Add up the wattage of all the bulbs you could replace and write the total here: _____ lbs. of CO₂/yr.

Look for EPA Energy Star ratings on all appliances, electronic equipment, and the HVAC system. Estimate how much of the school's energy footprint, in lbs./yr., is due to this equipment. Multiply that amount by 0.25 to find the reduction for replacing this equipment with Energy Star equipment and write the answer here: _____ lbs. of CO₂/yr.

Estimate how much of the energy footprint goes to heating and air conditioning. If the school does not have double-pane windows, multiply that amount by 0.15 to find the reduction for installing double-pane windows and write the answer here: _____ lbs. of CO₂/yr.

If your school has no insulation the reduction for installing it is the same as for double pane windows: _____ lbs. of CO₂/yr.

Install solar hot water collectors. If you cannot estimate the part of the energy footprint used to heat water, multiply the total energy footprint by 0.20 and write the answer here: _____ lbs. of CO₂/yr.

Reduction for generating all the school's electricity with photovoltaic cells. Write the number you calculated for electricity on page 13: _____ lbs. of CO₂/yr.

Energy Footprint Reduction: Add up the energy reductions, divide by 2000, and write the answer here: _____ tons of CO₂/yr.

Transportation Reduction

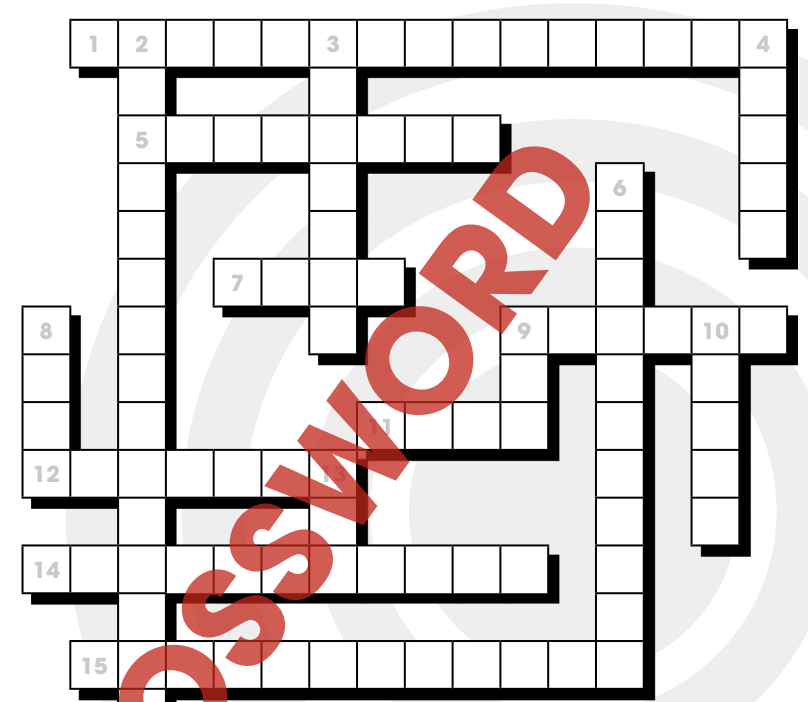
Gather the following numbers (some you will have to estimate):

- Average distance ridden by students traveling to school by car: _____ mi.
- Average distance ridden by students traveling to school by bus: _____ mi.
- Days in school year: _____
- Number of single riders who will agree to carpool: _____
- Average number in carpool: _____
- Number of students who will switch from car to bus: _____
- Number of students who will switch from car to walking: _____
- Number of students who will switch from bus to walking: _____

Crossword Puzzle!

Across

- The tons of carbon dioxide emissions caused by your activities.
- What CO₂ is to the photosynthesis process.
- EPA Energy _____ Rating.
- All over the Earth.
- Compounds that enter the atmosphere when paint is sprayed. (abbreviation)
- Rising temperature is one example of global _____ change.
- Circulating air in a building.
- Energy inefficient light bulbs with a tungsten filament.



Down

- It cools the inside of a building on a hot day.
- Coal, oil, and _____ gas.
- The unit for measuring the amount of natural gas used.
- The energy efficient kind of light bulbs.
- The system that heats, cools, and circulates air in a building. (abbreviation)
- Coal, oil, and natural _____.
- If Earth's climate changes slowly enough, we will be able to _____ to it.
- The government agency that worries about the environment. (abbreviation)

Word List

carbon footprint	fluorescent	climate
air conditioning	star	EPA
natural therm	HVAC	ventilation
reactant gas	global adapt	incandescent
	VOCs	

Comprehension Quiz

Part A

Circle the word **TRUE** if the statement is TRUE or Circle the word **FALSE** if it is FALSE.

- Oil is a fossil fuel.
TRUE **FALSE**
- Oxygen is a greenhouse gas.
TRUE **FALSE**
- Your share of the CO₂ emitted into the atmosphere is called your carbon offset.
TRUE **FALSE**
- Energy Star is a brand of light bulbs.
TRUE **FALSE**
- Photovoltaic cells heat water.
TRUE **FALSE**
- It is possible for a school bus to emit CO₂ even when it is not moving.
TRUE **FALSE**
- A bicycle has a much smaller carbon footprint than that of a school bus.
TRUE **FALSE**

Part B

Put a check mark (✓) next to the answer that is most correct.

- Carbon footprints are usually expressed in units of
 A tons per year.
 B miles per hour.
 C therms per week.
 D kilowatt-hours per month.
- The government agency concerned with climate change issues is the
 A AARP.
 B EPA.
 C HVAC.
 D VOC.
- Which of these is the term for an efficient type of light bulb?
 A fluorescent
 B incandescent
 C photosynthetic
 D photovoltaic

Green School Charter





Reduce What You Can and Offset the Rest

3. Answer the questions in complete sentences.

a) How are carbon offsets measured?

b) Describe something a company might do as a result of your buying a carbon offset from it.

Extensions & Applications

Describe briefly how your school could reduce its carbon footprint to zero.

EASY MARKING ANSWER KEY

3.

- a) Carbon offsets are measured in tons per year.
- b) (Answers will vary.) A company could plant trees on your behalf.

Extensions & Applications

Answers will vary widely from school to school. Student should include recommendations for reduction of the print due to use, food, and transportation and mention planting trees. Finally some mention should be made of buying carbon offsets.

