

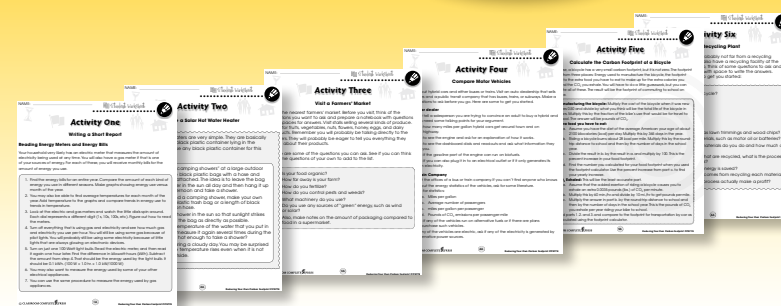
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Your Footprint At Home

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

- a) Electrical appliances have a carbon footprint.
TRUE FALSE
- b) A heating oil bill shows how much oil you used.
TRUE FALSE
- c) An electric dryer is more energy efficient than a clothesline.
TRUE FALSE
- d) Modern appliances are usually less efficient than old ones.
TRUE FALSE
- e) Most factories have a carbon footprint.
TRUE FALSE

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

- a) An electricity bill shows how much energy you used in units of
 - A volts
 - B amps
 - C electrons
 - D kilowatt-hours
- b) What is the source of energy for most of the electricity generated in the United States?
 - A solar cells
 - B fossil fuels
 - C hydroelectric dams
 - D nuclear power plants
- c) All of these release CO₂ into the atmosphere, except
 - A a gas stove
 - B a solar cell
 - C a diesel truck
 - D a wood-burning fireplace



A Footprint On Your Dinner Plate

aware of which products are grown locally and which crops are in season. These foods probably haven't traveled very far. Especially avoid summer produce in the winter. These foods were probably grown in the Southern Hemisphere many thousands of miles away.

Packaging is yet another indirect part of the food footprint. You can reduce this part by buying bulk items and by taking your own reusable shopping bag to the market. Food at farmers' markets and roadside stands have very little packaging. Some large markets also have bulk food sections.

STOP

Describe two ways to reduce your carbon footprint that is related to the food you eat.

Food classified as organic has been grown without pesticides, herbicides, or chemical fertilizers, and so it has a smaller footprint. Food at farmers' markets and natural food stores are usually organic.

Meat has a larger footprint than grains, beans, vegetables, or fruits. It is much more efficient to get your protein by eating grains and beans than to feed grains and beans to animals and then eat the animals. In other words, vegetarians have a smaller carbon footprint than meat eaters. Finally, you might want to consider starting a home garden. Now that is really local produce.

In a nutshell, you can reduce your food footprint by buying local, organic, in season, in bulk, by eating less meat, and by growing your own.



Footprints At The Mall And In The Trash

1. Most things you own contribute to your carbon footprint. Number the parts of the footprint of a cotton T-shirt from 1 to 13 in the order they occur. The first and last have been done for you.

- _____ a) weaving cloth
- _____ b) manufacturing a tractor
- _____ c) washing and drying
- _____ d) sowing cotton seed
- _____ e) shipping to clothing store
- 13 _____ f) trucking to landfill
- _____ g) sewing
- 1 _____ h) mining iron ore
- _____ i) shipping to factory
- _____ j) picking cotton
- _____ k) driving to and from clothing store
- _____ l) spinning thread
- _____ m) plowing a field



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

- a) Wooden furniture does not have a carbon footprint.
TRUE FALSE
- b) Almost all manufacturing has a carbon footprint because it uses energy.
TRUE FALSE
- c) Banana peels, coffee grounds, and lawn trimmings can be put in a compost pile.
TRUE FALSE
- d) Broken glass cannot be recycled.
TRUE FALSE
- e) Motor oil can be recycled.
TRUE FALSE



Your Slice Of The Shared Footprint

3. Answer the questions in complete sentences.

- a) Describe your "civic footprint" and give three examples of activities that add to it.

- b) Planting a tree and switching to energy efficient light bulbs are both good for your footprint, but in different ways. Explain how each act changes the amount of CO₂ in the atmosphere and how they are basically different.

Extensions & Applications

Name three government activities that add to the government carbon footprint and to your share of that footprint. For each activity, describe a new law or other government action that could reduce that part of the footprint.

- 1. Government Activity: _____
Law to reduce footprint of activity: _____
- 2. Government Activity: _____
Law to reduce footprint of activity: _____
- 3. Government Activity: _____
Law to reduce footprint of activity: _____



Carbon Footprint Calculator

(continued)

Transportation: Car Travel

Estimate how many miles you travel in a car each year and estimate the average number of people in the car when you are a passenger. Find out the miles per gallon (mpg) rating of the car that you ride in. The mpg for any car can be found at <http://www.fueleconomy.gov/Feg/findacar.htm> Multiply times the conversion factor.

$$\frac{\text{(miles ridden per year)} \times (22)}{\text{(miles per gallon)} \times \text{(average number of people in car)}} = \frac{\text{lbs.}}{\text{yr.}}$$

Air Travel

Multiply the number of hours you spent flying over the last year by the conversion factor.

$$\text{(hours spent flying)} \times (380) = \frac{\text{lbs.}}{\text{yr.}}$$

Public Transport

Multiply the approximate number of miles you rode on a bus or train by the conversion factor.

$$\text{(miles on bus or train)} \times (0.24) = \frac{\text{lbs.}}{\text{yr.}}$$

Total emissions due to transportation _____ pounds/year

Everything Else: Waste

Start with 1220 pounds and subtract 240 lbs. if you compost kitchen scraps and lawn trimmings. For recycling, subtract 140 for cans, 40 for glass, 220 for paper, and 40 for plastic.

Write the total here: _____ pounds/year

Goods and Services

Find out how much your household spends each month on everything else. Include clothing, furniture, appliances, entertainment, telephone, and healthcare. Don't include taxes or anything already accounted for. Use the formula below to find your share of this part of the footprint

$$\frac{\text{(monthly household spending)} \times (6.0)}{\text{(number of people in household)}} = \frac{\text{lbs.}}{\text{yr.}}$$

Emissions on Your Behalf: 3520 pounds

Total emissions due to everything else: _____ pounds/year

Trees

Divide the number of trees on the property where you live by the number of people in your household, multiply the result by 20 and subtract it from all the other emissions.

$$\frac{\text{lbs.}}{\text{yr.}}$$

GRAND TOTAL _____ pounds/year

Divide the grand total by 2000 and write the answer here: _____ tons/year



Crossword Puzzle!

Across

- Two atoms of oxygen and one atom of carbon make one carbon dioxide _____.
- The element with the symbol C.
- Carbon dioxide emissions caused by your activities.
- Going to work while staying at home.
- Chemicals that kill bugs on crops.

Down

- Its formula is CO₂.
- Weed killer.
- They don't eat meat.
- Carbon going in a circle.
- Our activities are changing Earth's _____.
- Coal and oil are _____ fuels.
- Cells that turn sunlight directly into electricity.
- Smaller than a molecule.
- The unit in which natural gas is sometimes measured.
- It's natural, it's a fossil fuel, and it is a _____.

Word List		
atom	climate	pesticides
carbon	fossil	photovoltaic
carbon cycle	gas	telecommuting
carbon dioxide	herbicide	therm
carbon footprint	molecule	vegetarians



Comprehension Quiz

Part B

3. Which of these parts of your personal footprint is most difficult to reduce?

- A the part caused by traveling
- B the part caused by the food you eat
- C the part caused by government activities
- D the part caused by heating and cooling your home

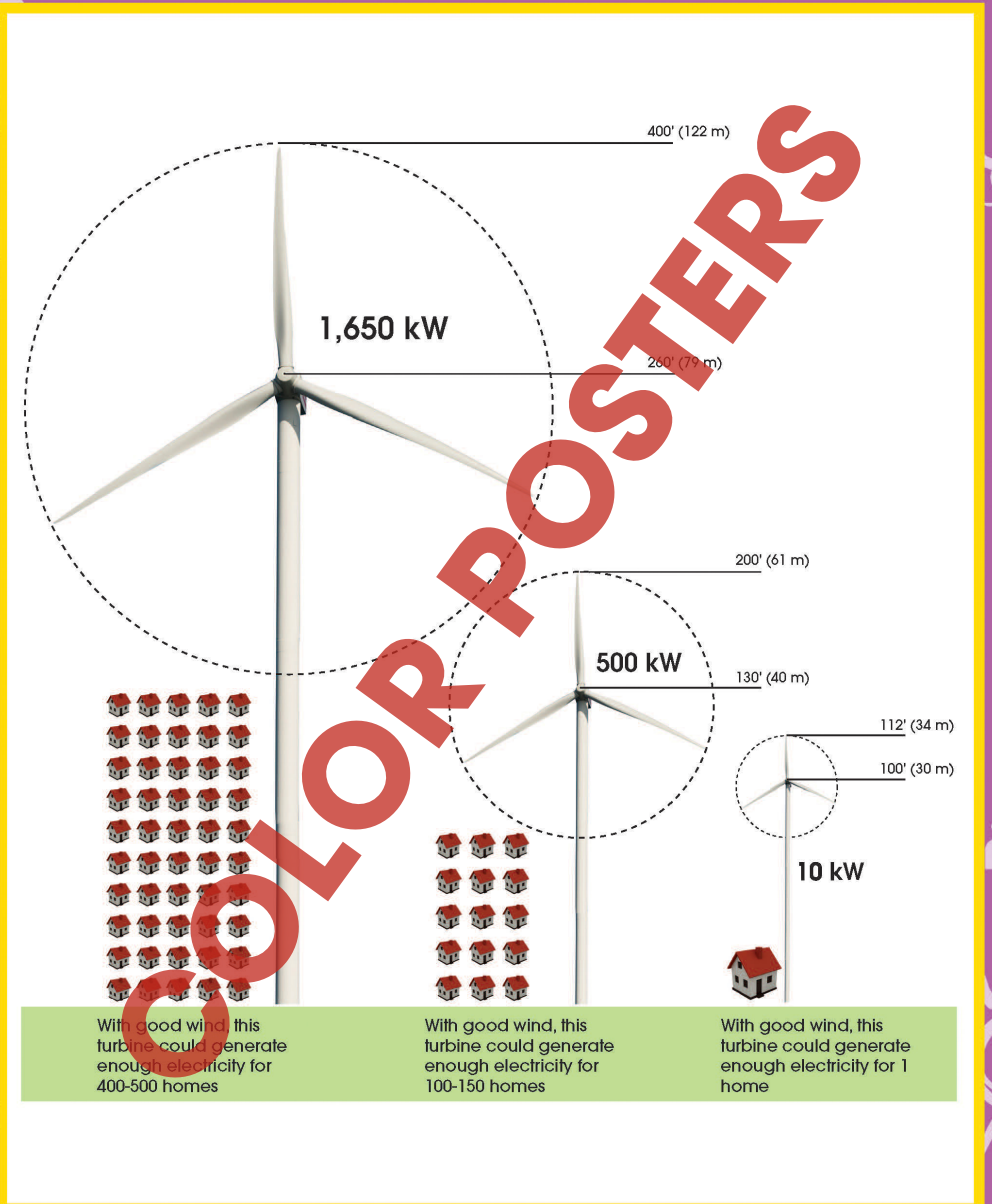
Part C

Answer each question in complete sentences.

- Explain how human activities are changing Earth's climate. 3
- Define carbon footprint. 3
- Explain why using electric appliances increases your carbon footprint. 3
- Tell four ways you can reduce the carbon footprint of the food you eat. 3
- Explain why bus passengers have lower travel footprints than car passengers, even though buses emit more CO₂ than cars. 3

SUBTOTAL: /15

Wind Turbine Capacity



NAME: _____

After You Read 



Climate Change Has Your Footprint On It

3. Answer the questions in complete sentences. Describe two steps in the carbon cycle.

- a) _____

- b) _____

Extensions & Applications

a) Describe the result of the greenhouse effect in terms of heat and temperature change.

EASY MARKING

b) Explain why a greenhouse and Earth's atmosphere both have a greenhouse effect. Explain what causes the greenhouse effect in both cases.

3.

(Answers will vary. Order may vary.)

- a) Combustion converts carbon compounds to carbon dioxide.
- b) Photosynthesis converts carbon dioxide to carbon compounds.

Extensions & Applications

a) A material traps heat and causes the temperature to rise.

b) In a greenhouse the glass traps the heat, and in the atmosphere, CO₂ and other gases trap the heat.

11

1.

a) TRUE

b) TRUE

c) FALSE

d) FALSE

e) TRUE

2.

a) D

b) B

c) B

12

(Answers will vary. Any two) natural gas, heating oil, electricity, coal.

13

1.

- a) cooking stove
- b) clothes dryer
- c) dishwasher
- d) hot water heater
- e) air conditioner
- f) light bulb

2.

a) TRUE

b) FALSE

c) TRUE

d) FALSE

e) TRUE

15



3.

- a) You will need to find the amount of energy used on the energy bills.
- b) To find your home footprint, multiply the amount of energy times a conversion factor and divide by the number of people in your household.

Extensions & Applications



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