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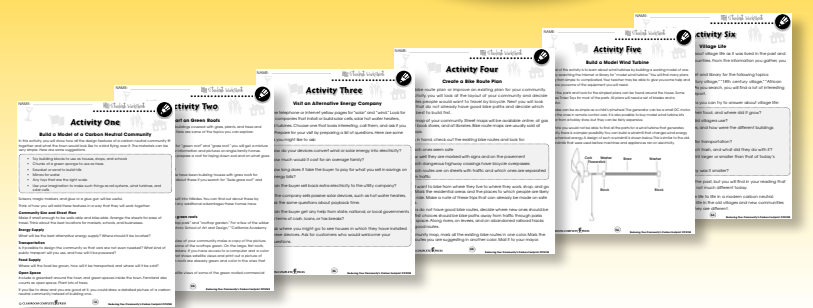
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## The Transportation Footprint of a Community

1. **Circle** the word **TRUE** if the statement is TRUE or **Circle** the word **FALSE** if it is FALSE.
- a) Sharing rides to work is called carpooling.  
**TRUE      FALSE**
  - b) Buses are a type of public transport.  
**TRUE      FALSE**
  - c) Telecommuters are old-fashioned telephones.  
**TRUE      FALSE**
  - d) Transportation adds very little to the carbon footprint of a community.  
**TRUE      FALSE**
  - e) Biking has the same carbon footprint as riding a bus.  
**TRUE      FALSE**
  - f) Electric cars usually have a carbon footprint.  
**TRUE      FALSE**

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

- a) Which invention was the main cause of people moving from cities to the suburbs?
  - A car
  - B radio
  - C telephone
  - D electric lights
- b) Which means of transportation has the smallest carbon footprint?
  - A bike
  - B bus
  - C carpool
  - D train
- c) How do most people in the United States travel to work?
  - A bus
  - B car
  - C train
  - D walk



## The Transportation Footprint of a Community

**M**ost of the carbon dioxide we put into the atmosphere comes from energy use. Transportation uses a big part of this energy. This is because most of our cars, buses, and trains either burn fossil fuel or run on electricity that comes from power plants that burn fossil fuel.



Traffic congestion is both time consuming and harmful on the environment.

In most cities, people drive to their jobs. Most of these **commuters** ride alone rather than sharing rides. Driving alone burns more fossil fuel than any other way of commuting. The next best way to lower your transportation footprint is to share a ride, called **carpooling**. Taking a public bus or commuter train is usually even better than carpooling.

The only means of transportation that doesn't have a footprint is travel by foot. (Confusing—isn't it?) When you walk, run, or ride a bicycle, you are emitting almost no greenhouse gases.

Sometimes biking to work can actually save time. Suppose someone drives 10 miles across town through heavy traffic to their job. On a good day, it takes 20 minutes each way. On the way home they usually stop at the gym to exercise for an hour. Their commute and exercise have taken one hour and 40 minutes out of their life. If they rode a bike to work, the round-trip commute would take only one hour and 30 minutes, and they wouldn't have to stop at the gym because they would have already gotten their exercise. Less time is spent, they get their exercise, and they save money on gasoline and gym membership fees.

**STOP** Which means of commuting to work has the largest carbon footprint, and which means has the smallest?



## The Transportation Footprint of a Community

1. Number the types of commuting from 1 for the smallest footprint to 6 for the largest footprint.

- a) one person driving a car
- b) two-person carpool
- c) three-person carpool
- d) five-person carpool
- e) bicycle
- f) bus

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

- a) Telecommuters work at home.  
**TRUE      FALSE**
- b) People who live in suburbs usually have a larger commute footprint than people who live and work in small towns.  
**TRUE      FALSE**
- c) People in four-person carpools have a carbon footprint that is twice as large as people in two-person carpools.  
**TRUE      FALSE**
- d) New towns are being built that are designed like old-time small villages.  
**TRUE      FALSE**
- e) Riding a bicycle with traffic is safer than riding in a separate bike lane.  
**TRUE      FALSE**
- f) The invention of the car led to changes in where people live.  
**TRUE      FALSE**

## The Transportation Footprint of a Community

3. Answer the questions in complete sentences.

- a) Explain why people moved from cities and villages to suburbs.

\_\_\_\_\_

\_\_\_\_\_

- b) Describe two ways that changing from commuting by car to commuting by bicycle can save money.

1. \_\_\_\_\_

\_\_\_\_\_

2. \_\_\_\_\_

\_\_\_\_\_

### Extensions & Applications

Joe lives in a suburb ten miles from a large city, where he drives to work five days a week. Jill lives in a small village, where she also works. Describe three ways their lives are different because of where they live. Be sure to choose differences that are related to their carbon footprints and to their commutes.

1. \_\_\_\_\_

\_\_\_\_\_

2. \_\_\_\_\_

\_\_\_\_\_

3. \_\_\_\_\_

\_\_\_\_\_

# Carbon Footprint Calculator (continued)

If your state is a **low** footprint state, write down **13** tons per year.  
 If your state is a **medium** footprint state, write down **20** tons per year.  
 If your state is a **high** footprint state, write down **31** tons per year.  
 These will be good guesses of the personal footprints of the people in your community.  
 If you live in one of the countries listed in the table, use the footprint shown there.

You might find it interesting to compare the per capita footprint of your community with some other countries and with the world average. You can find these values in the table at the bottom of the page.

Country	Per capita Footprint in Tons
United Kingdom	9.7
Canada	19
Australia	21

Now you must find out how many people live in your community—in other words, the population. There are several ways to do this.

- Many people already know your town or county's population. Your teacher would be a good person to ask.
- Many towns have signs where major highways enter the town that give the town name and population.
- You can go to the official website of the U.S. Census Bureau at: <http://www.census.gov/popest/estimates.html>. You will find a link to the most recent population estimates. Click on "All incorporated places" and then on "Excel" or "CSV" under the name of your state. You will find an alphabetical list of cities in your state and the population of each.

To find your community carbon footprint, simply multiply the per capita footprint times the population:

$$(\text{per capita footprint, tons per person}) \times (\text{community population}) = \text{community carbon footprint in tons}$$

Write the answer here: **Community Carbon Footprint = \_\_\_\_\_ Tons**

On the following pages you can calculate how much certain changes in your community can reduce its footprint.

For Comparison	
Country	Per capita Footprint in Tons
Afghanistan	0.03
India	1.2
China	4.6
United States	20
World Average	4.5

# Word Search

Find all of the words in the Word Search. Words are written horizontally, vertically, diagonally, and some are even written backwards.

- |                  |             |             |                   |         |
|------------------|-------------|-------------|-------------------|---------|
| active           | decompose   | greenhouse  | organic           | turbine |
| atmosphere       | fertilizer  | habitat     | per capita        | wind    |
| carbon footprint | fossil fuel | heat island | pesticide         |         |
| carbon neutral   | gas         | methane     | photovoltaic cell |         |
| carpool          | geothermal  | microbe     | solar             |         |
| commuter         | greenbelt   | natural     | suburb            |         |

P	T	A	B	C	C	H	R	E	T	U	M	M	O	C	R
O	H	U	D	A	E	F	A	G	H	I	J	K	L	A	A
M	R	O	R	R	T	L	E	B	N	E	E	R	G	R	L
N	O	G	T	B	O	P	D	Q	I	R	S	A	E	B	O
T	U	V	A	O	I	W	X	N	Y	T	T	Z	O	O	S
P	D	G	P	N	V	N	A	B	I	M	A	C	T	N	D
E	N	R	M	F	I	O	E	R	O	W	P	T	H	N	F
R	A	E	I	O	F	C	L	S	F	L	E	E	E	E	O
C	L	E	C	O	G	H	P	T	A	N	S	I	R	U	S
A	S	N	R	T	J	H	A	R	A	O	T	T	M	T	S
P	I	H	O	P	E	C	U	H	P	I	I	K	A	R	I
I	T	O	B	R	T	T	M	L	L	C	M	L	A	L	
T	A	U	E	I	A	E	O	N	I	O	I	C	P	L	F
A	E	S	V	N	M	C	Q	Z	R	S	D	G	E	T	U
U	H	E	V	T	E	W	E	X	Y	Z	E	A	A	L	E
B	C	D	E	D	B	R	U	B	U	S	F	G	H	S	L

# Comprehension Quiz

## Part C

Answer each question in complete sentences.

- What does telecommuting mean? 2  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
- How can food waste be used to generate electricity? 2  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
- What makes a community carbon neutral? 2  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
- Explain how planting trees lowers the carbon footprint of a community. 3  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
- Identify three alternative energy sources with little or no carbon footprint. 3  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

SUBTOTAL: /12

# How Biofuel Works





# The Transportation Footprint of a Community

1. Number the types of commuting from 1 for the smallest footprint to 6 for the largest footprint.

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- d) five-person carpool
- e) bicycle
- f) bus



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- e) Riding a bicycle with traffic is safer than riding in a separate bike lane.  
**TRUE      FALSE**
- f) The invention of the car led to changes in where people live.  
**TRUE      FALSE**



- 1.**
- a) 6
  - b) 5
  - c) 4
  - d) 2
  - e) 1
  - f) 3

- 2.**
- a) TRUE
  - b) TRUE
  - c) FALSE
  - d) TRUE
  - e) FALSE
  - f) TRUE

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**3.**

- a) (Answers will vary.) Cars made it possible to live farther from workplaces.
- b) (Answers will vary.)
  - 1. You don't have to buy gasoline.
  - 2. You don't have to pay gym membership.

**Extensions & Applications**

- 1. Joe buys more gasoline.
- 2. Jill can get exercise walking and biking to work.
- 3. Jill has more free time.

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# EASY MARKING ANSWER KEY