



Carbon Footprint

Total time ~40 minutes

Overview

Students will learn what a carbon footprint is and how to reduce their own.

Objectives:

After this lesson students will be able to:

- **Connect** greenhouse gases to personal carbon footprint.
- **Identify** how carbon is emitted in everyday activities.
- **Calculate** their individual footprint (their contribution to GHG)
- **Brainstorm** ways to reduce carbon emissions.

Vocabulary

- Carbon emissions: carbon that is released from activities we do
- Emit: to give off or release
- Carbon footprint: how much carbon your daily routine gives off
- Offset: Actions done to lessen the bad results

1. Introduction

- Introduce what a carbon footprint is. *Ask students if they remember what a greenhouse gas is? What activities result in carbon going into the atmosphere?*
- Video defining carbon footprint: <https://www.youtube.com/watch?v=yBkRZFp75ZY>
- **Example:** store-bought vegetable vs. from the garden → make a t-chart on the board and have students volunteer steps needed in producing each option
 - **Answers:** energy to grow the plant (tractor to till land/plant), energy to harvest (truck for collection), energy to transport it to the store (trucking, refrigeration), in store preservation (refrigeration), energy to go to the store and purchase it (car rides) VS. energy to produce the seeds (car ride to store and back) and transport it to the garden
- Ask the students: *What are some of the ways that you **emit** carbon everyday?*

2. Activity 1: Calculating Carbon Footprint

- Introduce the activity: *Each one of us has a carbon footprint. Why do you think they talk about it as a **footprint**?*
- Carbon footprint calculator worksheet:
 - https://www.energystar.gov/ia/products/globalwarming/downloads/GoGreen_Activities%20508_compliant_small.pdf
- Have students compare footprints with table mates
- Bring class back together for a moment and ask for a few volunteers to share how big their carbon footprint was. *Follow up questions: were you surprised, what else? Why were some of your classmates bigger/smaller than your own? What could you do to make it smaller?*

3. Activity 2:

Materials:

- Carbon Footprint Activity worksheet (pgs 3-5)
- Colored pencils: brown, green and blue

Preparation:

Prior to lesson, print out carbon footprint worksheets and have colored pencils prepared.

On The Board:

Vocabulary
Carbon Footprint Questions
Student Reflection Questions

Suggested Snack:

Produce from the garden

Other Resources:

<https://www3.epa.gov/carbon-footprint-calculator/>

- Introduce the activity: *We all have a carbon footprint so we all have a responsibility to reduce it!*
- Go through some more ways to reduce carbon footprints with the class:
 - Clothing: Buy less new clothes because producing clothes releases a ton of carbon and shop at thrift stores or get hand me downs from older friends/siblings!
 - Food: Eat less meat and dairy. Buy organic food. Grow your own garden! Buy food not in packaging! These are all ways to reduce all the carbon being emitted from food we see in the grocery store like our tomato example.
 - Energy: Turn off the lights in your house and open windows! Unplug chargers and other electronics when not in use. Avoid using heater or AC unless absolutely necessary.
 - *Our next activity will brainstorm other ways we can reduce our individual carbon footprint and our class's footprint!*
- Brainstorm as a class to reduce *their respective individual* carbon footprints: Give each table group piece of paper with a scenario for them to brainstorm for a few minutes how to reduce the amount of carbon they are using and then report back to the class.
 - **Examples of scenarios:** Going to the beach with their family, having a picnic with some friends, grocery shopping with your parents, spending a whole day at home, playing video games, day at school etc.
 - **Prompts if the groups are stuck:** *How are you getting to the place? What are you eating? How many materials are you using in class?*
 - **Answers:** take public transportation, buy local foods, eat vegetarian, buy without packaging, recycle and compost, turn off lights, open windows, turn off AC etc
- **ALTERNATIVE OPTION:** brainstorm as a classroom either ways to reduce your personal classroom's footprint or a schoolwide event (walkathon, dances, carnivals).
 - Ex) walk to school, no paper fliers/worksheets, vegetarian snacks, recycling bins etc.

4. Closing Activity

Conclude with acknowledgment of everyone's carbon footprint and that no matter how big or small yours is, there is always room to do more! Challenge each kid to think of what we can do as a class to reduce their footprint at school today!

5. Student Reflection Questions:

- What can we do in our class to reduce our carbon footprint?
- How can you reduce your carbon footprint when you go home today?

6. Assessment Questions:

Consider having a weekly journal assignment to monitor students' actions at home to reduce their footprint as well as a class competition or goal to reduce the classroom's footprint ie paper, lights, wasted snacks etc.
