

Climate Change

Objectives

You will be able to

- Identify ways your class can reduce greenhouse gas emissions.
- Analyze data and apply the data to develop actions for reducing greenhouse gas in your classroom.
- Listen to others' ideas.
- Draw and label a diagram to show your plan for reducing greenhouse gas emissions.



How do we know human activity is influencing climate, and what can we do about it?

Evaluation and Feedback

To evaluate your work, you will

- Use the "Analyzing and Interpreting Data" row of the Science and Engineering Practices Rubric.
- Use other criteria determined by your teacher.

Task 4: What Can We Do?

As a group:

- Gather data about electricity use, transportation, lighting, heating, and waste generation and recycling habits in your classroom.
- Present your data to the rest of the class.
- Use the data to decide on one change your class could make to reduce the carbon footprint of the classroom.
- Describe how the change reduces carbon dioxide.

Vocabulary

- audit
- carbon footprint
- electricity vampire
- greenhouse gas emissions
- mitigation
- recycling habits
- waste generation

Connect to the Culminating Project

Organize your thoughts on your climate change presentation to the school board:

- Describe what changes your class can make to reduce the amount of carbon dioxide it produces.
- Explain how these changes will reduce carbon dioxide production.
- Include how much carbon will be saved if these changes are made.



Introduction

You've learned that climate change is happening and why. You have examined evidence for the causes and effects of climate change. In this activity, you will learn about **what people can do about climate change**. Your group will gather data about electricity use, transportation, heating, lighting, and waste generation and recycling habits in your classroom. You will then figure out ways to reduce the amount of greenhouses gases your classroom produces.

Based on what you know about the causes of climate change, what do you think are some simple actions you
can take every day to reduce your own carbon emissions? For each action you list, explain why it would reduce
carbon emissions. Record your ideas below.

Part I • Conduct a Classroom Audit

- 1. With your group, go to the <u>National Wildlife Federation</u> site. Use the **Classroom Audit Tool** to gather data. Your teacher will assign one of these carbon emissions categories to your group:
 - Electricity "vampires"
 - Lighting
 - Heating
 - Transportation
 - Solid waste garbage and recycling
- 2. Your teacher will give your group a Background Information handout. Read over the background information for the category assigned to you.
- 3. Your teacher will give you a Classroom Audit Worksheet that you will use to take an audit of your class's habits in your assigned category.
- 4. As a group, enter information about your class's habits in the table for your category.
- 5. Summarize your data to the rest of the class:
 - Explain what data or information you collected.
 - **Cause and effect:** Describe to the class how activities in the category you studied lead to emissions of greenhouse gases.
 - **Cause and effect:** Describe what you and your class could do to reduce the class carbon footprint in the category you studied.
- 6. Your teacher (or your group) will enter the class data into the Classroom Carbon Calculator.



Part II • Reduce Greenhouse Gas Emissions

- 1. Your teacher will present a summary of the data your class collected. As a group, discuss these questions for each category:
 - Which category in your classroom includes activities that produce the greatest amount of CO₂?
 - Which category includes activities that produce the least amount of CO₂?
 - **Cause and effect**: Choose one category for which you feel the class could make changes to reduce the amount of CO₂ that the classroom produces.
- 2. Create a drawing (with labels) to show:
 - How the activities in this category result in the production of CO₂
 - How your class could reduce the CO₂ produced by activities in this category
 - Approximately how much CO₂ you could save by making this change
 - What might be easy and/or challenging about making this change



Summarize your answers in writing and create your drawing in your science notebook.

3. In your group, brainstorm new words or connections that you want to add to the class concept map.



Reflect

- 1. At the beginning of this task, you brainstormed ways you personally could reduce your carbon emissions. Look back at your ideas. After conducting the classroom audit today, how could you add to your ideas?
- 2. In this task, you focused on the crosscutting concept of **cause and effect**, or how one event can lead to another. Give one example of how this crosscutting concept came up in today's task.

Part III • Connect to the Culminating Project

Complete the Individual Project Organizer for this task.

