

Carbon Footprint Calculator

Objective

This activity helps students understand their personal contribution to greenhouse gas emissions and learn actionable strategies to reduce their carbon footprint.

What is a Carbon Footprint?

A carbon footprint is the total amount of greenhouse gases (primarily CO₂) released into the atmosphere as a result of an individual's activities, such as energy use, transportation, food consumption, and shopping habits.

Materials Needed

- Carbon footprint worksheet (or online calculator)
- Internet access (if using an online tool)
- Calculator
- Pen or pencil

Activity Instructions

1. Students estimate weekly or monthly usage for home energy (electricity, heating), transportation (car, bus, flights), diet (meat vs. plant-based), and purchases (clothing, electronics).
2. Use provided emissions factors to calculate emissions in kilograms of CO₂ equivalent.
3. Record totals and determine their largest impact areas.
4. Discuss strategies to reduce their footprint in each category.

Sample Emission Factors

- 1 kWh of electricity = 0.5 kg CO₂e
- 1 mile by car = 0.4 kg CO₂e
- 1 hour flight = 90 kg CO₂e
- 1 kg of beef = 27 kg CO₂e

Discussion Questions

Classroom Discussion Questions

- Which of your activities contributed the most to your footprint?
- What changes could you make to reduce your emissions by 25%?
- How can we encourage others to calculate and reduce their carbon footprints?

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Extension Ideas

- Compare footprints between students and explore cultural or geographic differences.
- Create a class pledge to reduce carbon footprints and track progress over a month.
- Design a poster campaign promoting low-carbon lifestyles.