Carbon Footprint Reduction Challenge Lesson

Lesson at a Glance
Students will gain greater appreciation of how they can change their habits to reduce their carbon footprint.

Grade
K-6

Time
Two 30-minute sessions

Core Connections
3rd Grade Social Studies
- 1.3.a *identify ways people use the physical environment*
- 1.3.c *Describe ways to conserve and protect natural resources*
- 1.3.e *Make inferences about the positive and negative impacts of human-caused change to the physical environment*

4th Grade Social Studies
- 1.3.b *Explain viewpoints regarding environmental issues*

Materials
- ☐ Pencil
- ☐ Vanishing Footprint Worksheet

Background
A carbon footprint is a way of measuring how much carbon dioxide we send into the atmosphere through our daily actions. This could include turning on a light, television, computer, heat, air conditioning, driving a car, turning on the dishwasher or even brushing your teeth. Anything that is plugged into an electrical outlet in your house adds to your carbon footprint. Likewise, it takes energy to make everything we buy and use, so your "stuff" adds to your carbon footprint.

Activity
1. Have your students brainstorm a list of all of the activities they do that they think increase their carbon footprint.
2. As a group, have them think of a way that they could help reduce their carbon footprint. Which would be difficult? Which would be easy?
3. Now hand out the Vanishing Footprint Worksheet.
4. Ask your students to take the worksheet home and fill it out.
5. Have your students tally their answers as a class.

6. As a class, graph their results.
7. Ask your students for suggested ways they could make changes at home.
8. Ask your students to try at least three of these activities for a week. Was it hard or easy to make these changes? Are there any they would be able to continue doing.

Climate Change Connections

What are some things I can actively do to help mitigate the effects of climate change or to positively impact the environment in which I live?

Conclusion

Ask your students how their family might benefit from these changes? What about the planet? (financially, cleaner air, less carbon dioxide, etc.).

Extension:

1. Have your students record which room has the most lights and which are used the most? Ask students to make the simple commitment to turn off lights or lamps when they leave a room for one week. Have them report back to the class how easy or difficult this was. Ask students: Did it become a natural habit? Would you consider this an easy way to conserve (save) electricity?

2. Ask students to look at the five lights that are on the most and check the wattage of each bulb. Have them estimate how many hours a day that light is on. They can determine how much electricity each light uses in one day with the following calculation: **Wattage x hours used per day ÷ 1,000 = daily kWh of consumption.** Multiply this by 365 to figure out annual electricity used by just that one light bulb. Additionally, the "Heat Bulb or Light Bulb" activity from Colorado State is another effective way to tie in math to this lesson: http://www.ext.colostate.edu/energy/k12/bulb-lesson.pdf

Adapted from Seattle City Light's Climate Action Now website.

Name_____

Vanishing Footprint Worksheet

1. Count the number of light bulbs in your house. _____
    - How many of these are regular bulbs? _____
    - How many are compact fluorescent bulbs? _____
    - Could any of your regular bulbs be exchanged for compact fluorescent bulbs? _____

2. Count the number items you have plugged in at your house. _____
    - Could any of them be unplugged when not in use?
    - List which ones below.

3. How many car trips, on average, does your family take per week?
    - To work _____
    - To school _____
    - Errands _____
    - Other _____
    - Record the total here _____
    - How could you reduce the number of trips? _____
    - How many miles would you save? _____
    - How many pounds of carbon dioxide would you keep from entering the atmosphere? (Every mile saved reduces 1 pound of carbon dioxide from being emitted into the atmosphere.) _____