

## It's the small things that count

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### Duration:

½ hour to setup and introduce  
1 week of journaling  
1 class for comparison and discussion  
½ hour to do follow-up later in year

### Objectives:

Students will:

- Record their carbon outputs for a week
- Assess their carbon outputs
- Discuss how they can reduce their carbon outputs in small ways that will make a big difference

### Vocabulary:

#### Greenhouse gases

Gases in the atmosphere that trap heat and contribute to heating the earth

#### Carbon Output

The amount of carbon gases that we each contribute to the atmosphere and global warming

### British Columbia PLO's:

Science 6, 7, 8  
English Language Arts, 6, 7, 8  
Social Studies 6, 7, 8

### Background:

In this activity students will keep a journal recording their carbon outputs for one week. After they have completed the journaling for one week the class will discuss where carbon outputs are highest, ways in which they can reduce them, and make an action plan. The main idea is to find small ways in which we can each change our behaviour that will add up to big changes in our carbon output, and promote continual reduction and revising of plans.

Climate change has jumped into the forefront since the United Nation's Intergovernmental Panel on Climate Change (IPCC) released their fourth assessment report in February 2007. The report stated that humans have "very likely" changed the climate over the last several centuries and that the impacts of climate change will affect ecosystems worldwide in a devastating manor unless we act immediately to reduce carbon outputs globally.

A significant increase in the levels of greenhouse gases in our atmosphere over the last several centuries is the major reason why the climate today is changing

rapidly. Additional greenhouse gases results in extra heat being trapped in the atmosphere causing the temperature of the planet to rise higher than otherwise expected. With temperature increases come more intense storms, extreme droughts, and sea level rises.

Just as the impacts are varied so are the sources of the greenhouse gases that are causing the phenomena to occur. It is fairly clear that human activities have impacted the planet greatly, and we continue to influence the earth today and will into the future. Some argue that humans began to alter our environment as long ago as 8000 years before present when we started to change the landscape for agricultural purposes. However, it's only been since the industrial revolution in the 1800s that humans have begun to drastically alter the natural climate.

This activity is best done after completing the introduction and accompanying greenhouse gas readings and activities so that the students have a basic knowledge of how greenhouse gases affect the global environment. This is a great way to start a climate change unit or end it, or both.

Using this lesson plan at the beginning of the climate change unit it is a great way to introduce many of the components of carbon dioxide as a greenhouse gas and how it affects the climate. If used at the end of the unit students will have a better understanding of what the impacts of climate change are and will be able to synthesize much of the material covered. If this activity is done once at the beginning and then again several weeks later at the end of the unit comparisons can be made of the topics discussed, which can be used as an evaluation tool for both teachers and students.

### *Materials:*

- Class set of *Climate Change Ocean News*
- Access to the internet
- Notebooks

### *Procedure:*

1. If you have not done so already introduce how greenhouse gases in the atmosphere trap heat and warm the planet. Explain that by increasing the amount of greenhouse gases in the atmosphere the planet warms up more than normal. See the *Greenhouse Gas Activity* in *Ocean News Issue 7* for teaching ideas and images.
2. Have the students brainstorm sources of greenhouse gases in small groups and then create a list of sources on the board. Many things contribute to greenhouse gases in the atmosphere. Here is a sample list that may help kick start some ideas.
3. As a class read the *Ocean News* article *Its the small things that can go a long way*.
4. Have the students copy down the sources of greenhouse gas emissions from the board into their books with room to add more ideas over the next several weeks.
5. Set-up carbon journals with the students that can be added to for the next 7 days. For each day have them divide the page into the following columns: activity, length

of time, how this contributes CO<sub>2</sub> to the atmosphere.

6. Have the students carry out these activities and complete them each day over the next week. Give them time in class to work on them and compare ideas and inputs with other students.

### *For homework for next day*

1. Get students to record their carbon output for each day in their journal.
2. Using their carbon output journals, have them total their outputs and sources, and write a short summary about their week and their emissions.
3. For homework have them research some companies or organizations that are committed to reducing greenhouse gas emissions (they can be local or international companies). Have them report back to the class on their findings.

### *In class the next week*

1. Ask students to identify their largest source of carbon output. Make a list on the board of the classes largest outputs.
2. Using the list on the board, have the students come up with suggestions on how to reduce each of these outputs by in their daily lives.
3. Add to this discussion by making a list on the board of initiatives role model companies and organizations have taken to reduce their impacts. The students should have a list of these companies from their homework. Students should reflect on how they can incorporate some of these initiatives into their own lives.
4. After class discussions, ask the students to create an action plan that they can follow in order to reduce their personal impacts in a reasonable way. We want to make plans that are easily carried out and not too difficult or overwhelming. Encourage the

students to make plans with reachable goals that are easy to implement.

5. In a month or so (set a date so everyone knows) check back with the students on their action plans and measure their progress. One idea is to get the students to write a short postcard at the end of the class about what their goals (do this after the initial class discussions and assignments). You can mail their self-addressed cards about a month later to remind them about their action plans.

#### *Follow-up*

1. At the end of the climate change unit or later on in the year have the students go back to their action plans and evaluate how well they have stuck to their goals.
2. Have the students' pair up and interview each other about their goals, how they have carried them out, and how in the future they will continue to reduce their personal greenhouse gas emissions.
3. Ask the students to share any new ways they have discovered to reduce their carbon footprints.
4. In partners have the students reassess their carbon reduction actions and propose new ways that reductions can be made. Students should be encouraged to go back and re-evaluate where improvements in their lives can be made.

#### *Discussion:*

- What are our largest carbon output sources?
- How can we reduce each of our carbon outputs?
- Create a list of companies in your area that are committed to reducing carbon emissions (How can we use these companies as examples to reduce our own personal outputs?)
- Can we reduce all of our carbon outputs? Why or why not?

#### *Extension and Resources:*

- This is a great website that looks at sources of greenhouse gases and how to reduce them [globalwarming.enviroweb.org/ishappening/sources/index.html](http://globalwarming.enviroweb.org/ishappening/sources/index.html)
- This website provides a list of ways to reduce individual contributions to global warming [environment.about.com/od/globalwarming/tp/globalwarmtips.htm](http://environment.about.com/od/globalwarming/tp/globalwarmtips.htm)
- This is a good activity to lead into the *Becoming Carbon Neutral* lesson plan. This first step of assessing your carbon outputs is critical in making a plan to become carbon neutral.
- Another associated activity from this resource guide is *How Cheeseburgers Impact the Ocean*, which examines carbon footprints associated with food
- This activity can be enhanced by adding a quantitative aspect by having the students calculate their outputs based on the hours of usage and electrical sources.
- For a list of companies that are reducing their greenhouse gas emissions see the David Suzuki Foundation Website [www.davidsuzuki.org/Climate\\_Change/Solutions/Green\\_Leaders.asp](http://www.davidsuzuki.org/Climate_Change/Solutions/Green_Leaders.asp)
- For a great image of major sources of greenhouse gases visit global warming art [www.globalwarmingart.com/wiki/Image:Greenhouse\\_Gas\\_by\\_Sector.png](http://www.globalwarmingart.com/wiki/Image:Greenhouse_Gas_by_Sector.png)