

***The Tides of Change:
Climate Change in Atlantic Canada***

Group Members: _____

Trivia Challenge: Search the entire poster to find answers for the following:

1. What province is Saint John located?

2. What is meant by the term “blowdown”?

3. What “distinguishing” features does a Harlequin Duck have?

Did You Know? Use the pieces of information under this heading (“Did You Know?”) on the poster to answer the following true/false (T or F) questions. If the statement is false, cross out the incorrect word or number value, and write in the correct version.

- ___ Cod travelled northwards between 1900 and 1920, but after 1930 they retreated southwards.
- ___ Changes in water temperature affect only a few species in the marine food web.
- ___ A 20 – 30% reduction in present global emissions of CO₂ would be required to stabilize atmospheric CO₂ concentrations at current levels.
- ___ Canada’s emission reduction target under the Kyoto Protocol is 3%.
- ___ 100% of Atlantic Canada’s fog comes from outside the region.
- ___ Venus has an atmosphere of 75% CO₂.
- ___ The climate between 1000 and 1200 A.D. was very similar to today’s.
- ___ The “Little Ice Age” began in the 1200’s and ended in the 1500’s.
- ___ Temperatures on Venus reach 430 °C.
- ___ Canada has about 4% of the world’s population, but produces 2% of global CO₂ emissions.

Is Climate Changing?

1. What is happening to most of the world's glaciers?
2. What is the IPCC?
3. Examine the Temperature Change maps. In what general areas do you see shading corresponding to the greatest temperature change?

Climate Has Always Changed:

1. How can climate be described over the past 10 000 years?
2. Answer the question in the

| |
|-----------|
| Green box |
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The Greenhouse Effect:

1. What are "the big three" GHGs (greenhouse gases)?
 - a)
 - b)
 - c)
2. Describe the projected rise in atmospheric CO₂ concentrations from the graph.
3. According to the solar energy budget, what portion of the earth absorbs as much radiation as it reflects?

The Air We Breathe:

1. What human activities contribute to smog?
2. Examine the triangle Δ , and predict the impact on health care costs if fossil fuel burning is reduced. Explain.
3. What activity is responsible for 26% of GHG emissions in Canada?

Freshwater Issues:

1. Examining the 2 graphs pertaining to the Saint John River, what correlation exists between the number of mild days in January and peak daily flow?
2. Answer the “?” on hydro-electric power.

Forests in Peril?

1. How do air-filled stems in hardwoods cause their demise?
2. Why might the Gypsy moth threaten Canadian forests if warming continues?

Down on the Farm:

1. Make a list of pros and cons for farmers if global warming continues?

Pros**Cons**

2. What is the greatest concern for agriculture in Atlantic Canada?

Changing Ecosystems:

1. Examining the 2 maps, comment on what a doubling of atmospheric CO₂ would do to the area, or amount of land in Canada occupied by:
 - a) Tundra?
 - b) Grasslands?
 - c) Temperate regions?
2. How will Atlantic Canada’s biomes change if this is accurate?
3. Predict what this shift in ground cover will mean for the biodiversity (plant and animal life) in Atlantic Canada?

How do we Measure up?

1. List the 3 levels of government involved in addressing climate change:
 - a)
 - b)
 - c)
2. How many tonnes of CO₂ are YOU responsible for emitting each year as a Canadian citizen?
3. As Canadians we emit a little more than twice as much CO₂ per capita than citizens of _____.
4. What country comes a close second to the U.S., who leads in global CO₂ emissions?
5. In Atlantic Canada, rank the following activities according to GHG emissions:
 - _____ Transportation
 - _____ Residential
 - _____ Industrial
 - _____ Electricity Generation

The Ocean:

1. What 2 ocean currents meet in the Canadian Atlantic region?
 - a)
 - b)
2. Compare the speeds of the 2 currents:
 - a)
 - b)
3. How large would cod caught in waters with bottom temperatures of 6°C compare to those caught in warmer or cooler waters?
4. What factors need to be considered when predicting average future fish stocks?

Rising Sea Level and Vanishing Coasts:

1. What is the projected tidal water level (m) for the year 2100? How does this compare to today?
2. What specific types of coastal areas will be most affected by sea-level rise?

Storm Surges and Coastal Flooding:

1. What is a storm surge?
2. What P.E.I. city was flooded by a storm surge January 21, 2000?
3. Answer the “?” regarding protection.

Sea Ice and Icebergs:

1. What will happen to sea ice with global warming?
2. What is predicted to happen to the southern limit of iceberg travel?
3. When did the Titanic sink?
4. Answer the “?” regarding icebergs.

Bonus Question: *What is the spelling/grammatical error in this frame?*

Let's Meet the Challenge:

1. How can YOU help to reduce greenhouse gases?
2. Brainstorm in your group, and list ideas to reduce our GHG emissions in Canada: