

***Temperature Rising:
Climate Change in Southwestern British Columbia***

Group Members: _____

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

1. What animals are diagrammed as methane producers?
2. How thick was the glacier on top of Vancouver 16 000 years ago?
3. What monster is said to inhabit Okanagan Lake?

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.

___ Hydroelectric reservoirs supply 50% of B.C.’s electrical needs.

___ Canada has about 4% of the world’s population, but produces 2% of global CO₂ emissions.

___ The cost of fighting B.C.’s forest fires during the 1998 summer was \$120 million.

___ The 1980’s was the warmest decade of the last century.

___ 9000 years ago, average temperatures in southern B.C. were 1 – 2 °C warmer than today.

___ The 1948 Fraser River Flood cost an estimated \$100 million.

___ Mackerel may eat young salmon.

___ On average, each person uses over 100 L of water at home every day.

___ Motor vehicle exhaust is the source of nearly 30% of the greenhouse gas emissions in the lower Fraser Valley.

___ The atmosphere of Venus is 75% CO₂.

Is Climate Changing?

1. How does weather differ from climate?
2. How do glaciers behave when climate changes?
3. By how much is the global temperature expected to rise above 1980 levels by the year 2100?
4. Where does the global map indicate the most significant temperature changes will occur?

Climate Has Always Changed:

1. What kind of biodiversity would you expect to have inhabited the Vancouver area 16 000 years ago?
2. Examine the global temperature change over 10 000 years. What seems to be the trend toward the year 2100?
3. When did the Little Ice Age occur?
4. Do you think extrapolating the graph from 1998 shows a probable increase? Why or why not?

Why is Climate Changing Now?

1. Record the following information on incoming solar radiation:
 - _____% absorbed by atmosphere
 - _____% reflected by atmosphere
 - _____% absorbed by Earth's surface
 - _____% reflected by Earth's surface
2. Summarize the carbon balance diagram.
3. What turning point saw additions of CO₂ to the atmosphere overtake removals?

4. Aside from water vapour, what are “the big three” GHGs?
 - a)
 - b)
 - c)
5. What are the causes of the rapid build-up of CO₂ in our atmosphere?
6. Examine the graph on atmospheric CO₂ concentrations.
 - a) How many ppm CO₂ are currently in our atmosphere?
 - b) What is the projected concentration for the year 2050?

The Air We Breathe:

1. What gets trapped in the Fraser Valley?
2. What will happen to the number of “bad air” days as climate warms?

Coastal Floods and Failing Ships:

1. Wetter and stormier winters are predicted for coastal B.C. Predict what impact this might have on the skiing industry in B.C.
2. Are slopes more or less at risk with wetter winters? Explain.

Rising Seas:

1. As climate warms, what will happen to glaciers?
2. What areas are most vulnerable to rising sea levels?
3. Answer the “?” regarding restricting development along shorelines.
4. Explain what is meant by “coastal squeeze”.

Salmon in Hot Water:

1. Why might tuna and mackerel replace salmon stocks in southern B.C.?
2. How might a reduction in salmon affect B.C.'s economy?
3. Create a "**human** stress-o-meter" to temperature, similar to the one for salmon.

Low-Water Blues:

1. What industry will largely be affected by changes in river flow with climate warming?
2. How much more water is used in an average home for showers than for baths?
3. What units are river flows reported in?
4. What date typically sees the Similkameen River's highest flow rate?
5. Explain what is meant by "evapotranspiration".
6. As evapotranspiration increases, what happens to the summer watertable?

Forests in Transition:

1. Answer the "?" in the centre of this frame.
2. Approximately how far is Kamloops from Hope, B.C.?
3. Which of these 2 regions (Kamloops/Hope) do you think will be more affected by climate warming, and why?
4. What impact will climate warming have on the B.C. forest industry and economy?

Down on the Farm:

1. Explain why the impacts of warming will have “mixed blessings” for the interior?
2. How will climate warming affect impacts on crops by pests?
3. If you were a greenhouse owner, how would your expenses shift throughout the year from present day?
4. What do you think the overall impact will be to the average B.C. farmer’s income?

How Do We Measure Up?

1. Rank the following regions by their per capita CO₂ emissions:

Canada	_____	Latin America	_____	India	_____
U.S.S.R.	_____	China	_____	Africa	_____
Japan	_____	Australia	_____	U.S.	_____

2. Approximately how many citizens of India have the same impact as one Canadian in CO₂ emissions? _____
3. Out of individual household CO₂ emissions, what % does automobile use put out?
- 4.
5. What activities contribute to 75% of CO₂ emissions that are not individually produced?

Let’s Meet the Challenge:

1. What did Margaret Mead say?
2. What does she mean?
3. Generate a list from group members, outlining what we as individuals can do to help reduce our personal impact on climate change: