

A Change in the Wind: Climate Change in Quebec

The Causes of Climate Change

Name: _____

Date: _____

Group Members: _____

Did you know?

1. What emits over three times its weight in CO₂ every year?
The average car
2. What greenhouse gases retain 21 times more heat than carbon dioxide?
Methane, CH₄
3. One-third of greenhouse gas emissions in Quebec are the direct result of what?
Human activities

Emissions – How Do We Measure Up?

4. What are the top 3 sources of greenhouse gas emissions in Quebec?
Transportation 38%, industry 33%, heating 12%

What is Climate Change?

5. What are three examples of human activity that have enhanced the naturally occurring greenhouse effect?
Use of fossil fuels, agriculture, deforestation
6. Of the three main greenhouse gases, which one has the greatest impact because it is the most abundant?
CO₂

<u>Connections</u>	<u>Reflections</u>	<u>Questions</u>
<i>What connections can you make among what you've learned, your lifestyle, your family, school, community, or other regions?</i>	<i>Reflect on your learning, understandings, and discoveries. "Write about one thing you did not know before starting this activity"</i>	<i>What questions do you still have, or what new questions have been raised?</i>

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The Consequences of Climate Change

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Date: _____

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Did You Know?

1. What severe weather phenomenon costs \$10-\$15 million annually in Quebec?
Flooding
2. What Quebec city is frequently hit by severe weather events?
Montreal
3. Which regions are likely to be most affected by a warmer climate?
Northern regions
4. What will happen to caribou herds with an increase in temperature?
Herds will decrease

A Climate in Constant Flux

5. When have ten of Quebec's warmest years of the century occurred?
Since the 1980s
6. Looking at the global map, what areas are expected to have the greatest temperature change in the next 50 years?
Polar/northern regions – high latitudes, interiors of continents
7. What do the three graphs show about how the temperature may change by the year 2100?
Drastically increasing

Our Health

8. What is the most direct health risk from warming climates?
Heat stress
9. Will warming increase or decrease the amount of smog?
Increase
10. What are four indirect impacts of climate change on human health?
Respiratory disorders, infectious disease, more deaths from extreme weather events, health disorders related to environmental contamination

Extreme Weather – What are the Risks?

11. What are examples of severe, or extreme weather events that may increase with global warming?

Flooding, ice storms, winds, rain, hail

Could a Warmer Climate Mean a Shortage of Water?

12. How might climate change alter snow and rainfall patterns?

Less frequent, but heavier precipitation

13. What might be the effects of droughts and reduced groundwater, as a result of climate change on humans?

Less water for consumption, agriculture, recreation; storm sewers overloaded.

14. How are fish affected when groundwater changes due to changes in precipitation?

Groundwater is typically cool/cold, and it cools rivers that it enters. If this is altered, fish habitats will be affected.

A Dynamic Forest:

15. What will happen to the tree line in Quebec?

Push farther north

16. How may precipitation and forest fires be changed with global warming?

Precipitation – Increase; Forest fires – Decrease

What about the Far North?

17. How has the permafrost been affected by the climate warming?

Increased temperature in this layer has led to melting, change in thickness

18. What specific impacts to northern communities will occur if the permafrost melts?

Infrastructure – landing strips, roads, erosion in coastal areas, growth rate and density of vegetation

19. How will tree growth be affected by climate warming?

Improved in size and shape

Wildlife Acclimates:

20. In what ways may animal species be affected?

Reduce population density of lake sturgeon, compromise Atlantic tomcod reproduction, change fish habitats

Rising Sea Levels

21. What are potential impacts resulting from changes in the estuary and gulf?
Increased erosion, less riparian habitat, more vulnerable waterfronts, modified distribution of marine species, possibility of accommodating larger ships

Our Farms

22. What are the positive and negative effects of climate change on Quebec's agriculture?
Positive – less risk of frost damage, increased yields and longer growing season, grow crops in northern regions
Negative – greater risk of damage caused by ice, lack of adequate protective snow cover and greater damage to low growing plants, milder fall temperatures and less effective cold-hardening of perennials, increased frost sensitivity of plants

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Action on Climate Change

Name: _____

Date: _____

Group Members: _____

We Can All Help

1. What must we do to slow the effects of climate change?

Consume less energy

2. What are 6 ways we can help?

Reduce energy consumption, plant trees, travel smart, walk, when driving – drive slow, recycle

Our Health

3. What actions can help to improve air quality?

Taking public transit, driving environmentally friendly cars, using fewer solvents and products with volatile chemicals

<u>What I am already doing...</u>	<u>What I can begin to do...</u>