

The Winds of Change: Climate Change in the Prairie Provinces

The Causes of Climate Change

Name: _____

Date: _____

Group Members: _____

Did You Know?

1. What are most forest fires in Canada caused by?
Lightning strikes
2. How much gas does your car burn to produce 2.5 kg of carbon dioxide?
One litre

Why is the Climate Changing Now?

3. What specific human activities are responsible for the rapid build-up of CO₂ in our atmosphere?
Burning fossil fuels, deforestation, and agricultural practices
4. What are the “big three” greenhouse gases we’re concerned about?
CO₂, CH₄, N₂O
5. Where do these “big three” greenhouse gases come from?
N₂O – fertilized soils, CO₂ - burning coal, oil, natural gas, CH₄ – sheep, cattle, landfills, wetlands

How Are Climates Changing in the Prairies?

6. What province may have higher risk of drought?
Saskatchewan
7. What problems will higher temperatures with warmer climates create?
Increased evaporation and intensify drought conditions

Melting Glaciers:

8. What will be affected by shrinking glaciers?
Downstream water flows, wildlife habitats, hydroelectric production

Extreme Weather

9. What are the specific extreme weather events that cause death and destruction on the prairies?
Thunderstorms, tornadoes, hailstorms, heat waves

10. Examine the graph showing costs of weather-related disasters. How do the last 20 years appear different out of the last 70 shown?

Much higher costs, and more frequent large costs

How Do We Measure Up?

11. From the graph, which are the three nations that produce the largest amount of CO₂ emissions?

1 – US, 2 – Canada, 3 - Russia

12. What activity is responsible for the greatest CO₂ output from individual residences? ***Transportation - 53%***

13. What activities produce the 75% of greenhouse gases not produced by residences?

Industry, agriculture, transportation, electricity generation, fossil fuel production, waste

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

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The Consequences of Climate Change

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Did You Know?

1. Historically what have been the most expensive weather-related disasters?
Droughts

Climates Do Change

2. Use graph 3 to tell what has happened to the Earth's average temperature since 1980?
It has risen considerably (~0.6 degrees Celsius)
3. What is the projected temperature rise for the year 2100?
Close to 5°C
4. What might happen to temperatures south of Greenland and eastward off the Canadian Atlantic coastline?
May drop up to 4 – 5 degrees Celsius

Life in the North

5. What animals are vulnerable to changes in sea ice, and why are the females particularly vulnerable?
Polar bears. Females will have less time on the ice in spring to feed on seals.
6. What is permafrost?
Frozen ground that remains below 0°C all year
7. What will be affected if the permafrost melts with a warming climate?
Infrastructure – buildings, railways, roadways, pipelines, etc.

Life in the Prairies:

8. How might a person living in a prairie city be affected as climate warms?
More enjoyable temperatures, more severe weather events, decreased air quality, higher air-conditioning costs, lower heating costs, new insects/diseases, increased grocery prices.

9. How might a person living in a farming community be affected as climate warms?
Higher / lower yields, irrigation demands, crop type change, increased losses from severe weather.

Changing Vegetation

10. What are some potential impacts on forests with the changing climate?
Decrease in tree growth rate in southern forests, decrease in tree seedling survival, southern forests replaced by parkland and grassland, increase in forest fires, increase in insects, increase in growth rate in northern forests.

<u>Connections</u>	<u>Reflections</u>	<u>Questions</u>
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Action on Climate Change

Name: _____

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Group Members: _____

How Do We Measure Up?

1. How can you help to slow the rate of climate change?
Turn off lights, appliances, TVs and computers when not needed, walk or bike for short trips, take bus or carpool, use energy-efficient lighting.

Let's Meet the Challenge

2. Why should we not wait to take action on climate change?
The longer we wait, the fewer options we may have to deal with climate change.
3. Where can we practice energy efficiency in our everyday lives?
Home, school, transportation habits, workplace
4. What will reducing greenhouse gas emissions now do?
Slow the rate and magnitude of climate change

What I am already doing...

What I can begin to do...

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