

# ***Taking the Chill Off: Climate Change in the Yukon & Northwest Territories***

## ***The Causes of Climate Change***

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Group Members: \_\_\_\_\_

### **What is the Greenhouse Effect?**

1. Name two of the gases that absorb heat energy in the atmosphere.  
***CO<sub>2</sub> and water vapour***
2. What can you conclude about CO<sub>2</sub> concentrations over the last 200 years from studying the graph?  
***Large increase***
3. What happens to the greenhouse effect as concentrations of greenhouse gases increase from burning fossil fuels?  
***Enhanced***

<b><u>Connections</u></b>	<b><u>Reflections</u></b>	<b><u>Questions</u></b>
<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***

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Group Members: \_\_\_\_\_

#### **Permafrost and Climate Change:**

1. What might happen to the permafrost if climate warms?  
***Melt / become thinner / perhaps disappear***
2. What can you conclude is happening from the Summer Thaw Depth graph?  
***Thaw getting deeper***
3. How will people be affected by thawing permafrost?  
***Unstable ground causes foundations for buildings and infrastructure to become unstable, travel***

#### **A Greener North:**

4. What will happen to the treeline with climate change?  
***It will shift northward***
5. What may happen to insect distribution as climate warms?  
***Migrate northward, having a potentially adverse effect on plants and animals.***
6. What new types of vegetative cover will be found in the Yukon and Northwest Territories as climate warms?  
***Temperate and grassland***

#### **A Tougher Life for Caribou?**

7. What insect might increasingly harass caribou with warmer temperatures?  
***Mosquito***
8. What would it become difficult for caribou to give birth and raise their young if climate warms?  
***Decline due to decreased health, less feeding/nutrition.***
9. How might caribou changes have an impact on the people in the region?  
***They rely on caribou for food, and also for the maintenance of traditional lifestyles. A breakdown of the traditional food supply will force adoption of other dietary sources.***

**Fire and Ice:**

- 10. How will the risks of forest fires change in the north with expected climate changes? **Increase**
  
- 11. List three effects of excessive thawing of ice.  
**Deeper and larger landslides, increased sediment load along riverbanks, which could affect fisheries and destroy spawning beds, landslide dams created, affecting transportation routes.**

**Impacts of Climate Change in the Beaufort Sea Region**

- 12. How much erosion could occur in a single year in the Beaufort Sea region?  
**More than 10 m**
  
- 13. How may climate warming affect this region?  
**Increased thaw of coastal permafrost and slope failure, hazards to navigation and offshore resource development, affect coastal communities.**
  
- 14. What is a consequence of climate warming?  
**Decrease in extent of Arctic sea ice and an increase in the length of the melt season**

**Sea Ice and Marine Mammals:**

- 15. What has been happening to the ice concentration in the area over time, comparing the 30-Year Median graph to that of September 1998?  
**Decreasing**
  
- 16. Why do seals suffer when ice melts quicker than usual?  
**Mothers depend on stable ice for lairs, so that a successful 6-week nursing period can take place. If the ice melts, the seal pups are weaned prematurely, forcing them to fend for themselves at too young an age.**

**Rivers and Lakes**

- 17. Northern communities rely on ice roads for transportation. How will this change as the climate warms?  
**Decrease**

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***Action on Climate Change***

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Group Members: \_\_\_\_\_

***Impacts of Climate Change in the Beaufort Sea Region***

1. Examine the air photo taken of Tuktoyaktuk from 1947. The green and black lines show the significant loss of shoreline over the last 50+ years. What has been proposed, and somewhat implemented since 1976?

***Shoreline protection measures***

***How Are the N.W.T. and Yukon Responding to Climate Change?***

2. What are some other energy sources to replace diesel fuel generators?

***Solar panels and walls, photovoltaics, waste heat recovery, wind turbines***

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