

# Weather and Climate Scavenger Hunt Activity

Grades: Middle school to high school (Grades 6-10, ages 11-16) Time: 45 minutes Venue: Outdoors

### **Overview**

The objective of this activity is to learn more about your immediate environment, as related to weather and climate. It begins with an introduction to weather and climate change basics, and then includes a group scavenger hunt. By the end of the activity, students should be able to explain the difference between weather, climate, and climate change.

# Notes:

- This activity was developed for a land camp activity, where there were youth of a wide age range. The activity could be modified for older/younger age groups.
- This requires minimal supplies. Weather meters were used (for measuring temperature and wind speeds), but the activity could be altered if those are not available.
- Having a book on common plants of Nunavut would be useful for identifying plants that are found by the students.

## **Materials**

- Printouts of the scavenger hunt activity sheet (1 for each team)
- Pencils (1 for each team)
- Weather meters [optional] (1 for each team)

# The Activity:

- 1. Introduce the topic, using the background below (or another climate change resource).
- 2. Split the class into small groups (of about 3 students per group).
- 3. Hand out the activity sheets and pencils to each group.
- 4. Give the class a time limit (e.g., 30 minutes) to complete the sheet.
- 5. Discuss the findings as a group at the end of the activity.

#### **BACKGROUND**

# REAL TO GOVERNMENT CONTRACTOR

#### Weather

Weather is the day-to-day state of the atmosphere, and its short-term variation in minutes to weeks. People think of weather as the combination of temperature, humidity, precipitation, cloudiness, visibility, and wind. We talk about changes in weather in terms of the near future: "How cold is it right now?" "What will it be like today?" and "Will we get a snowstorm this week?"

#### Climate

Climate is the average weather of a place over a long period of time, often 30 years. Climate information includes the statistical weather information that tells us about the normal weather, as well as the range of weather extremes for a location. Weather can change in minutes or hours, but a change in climate is something that takes place over longer periods of decades to centuries. Climate is defined not only by average temperature and precipitation but also by the type, frequency, intensity, and length of severe weather events. These weather events can be things like storms, floods, or cold spells.

#### **Climate Change**

We talk about climate change in terms of years, decades, and centuries. Scientists study climate to look for trends or cycles of variability, such as the changes in wind patterns, ocean surface temperatures and precipitation, and also to place cycles or other phenomena into the bigger picture of possible longer term or more permanent climate changes.

The world's climate is changing. On average, the temperature on the Earth's surface has increased by 0.6°C (1°F) over the last two centuries. There is strong evidence that the recent warming goes beyond natural climate variability, with most of it due to human activities, particularly the burning of fossil fuels. In the Arctic, climate changes are particularly intense. These changes will affect the rest of the world by increasing global warming further and raising sea levels.

We are already seeing some climate change effects in Nunavut. Some of these are changes in:

- Temperature
- Weather and precipitation
- Sea level
- Permafrost
- Ice conditions
- Wildlife and vegetation

#### **Greenhouse Effect**

How many of you have been to a greenhouse? What do you know about greenhouses and how they work?

A greenhouse is a great example of how the **greenhouse effect** works. The sun's rays enter the greenhouse through the clear glass. Most of the sun's energy is trapped in the greenhouse. This makes the greenhouse warmer than the air outside, so plants can grow. Some heat does escape through the glass, but most of it is trapped. This is sort of like being in a car on a sunny day. What happens inside the car compared to the air outside?



Similarly, the earth's atmosphere works like a greenhouse. Can someone explain how the greenhouse effect works?

- 1) The sun's rays reach the earth sunlight passes through the earth's atmosphere and warms the earth.
- 2) Some sunlight (or solar radiation) is reflected by the earth and the atmosphere
- 3) Most of the sun's energy (or the radiation) is absorbed by the Earth's surface.
- 4) Next, some of the energy will pass back through the atmosphere, into space.
- 5) But, the atmosphere also traps some of the heat, which helps to keep the earth warm (warm enough for life on Earth).

What happens when more heat is trapped around the Earth? The overall surface temperature of the Earth increases. **This leads to climate change.** 

#### **Greenhouse Gases**

The greenhouse effect on earth is caused by the atmosphere and greenhouse gases. Greenhouse gases are things like carbon dioxide or CO2. We need some greenhouse gases to keep the earth warm enough to live on, but if there are too many greenhouse gases in the atmosphere, we will start to see climate change.

#### What are some sources of greenhouse gases?

There are natural and human sources:

- Natural  $\rightarrow$  forest fires, volcanoes
- Human  $\rightarrow$  using fossil fuels driving a car, taking an airplane, charging your phone

How will climate change affect you?

- Hunting seasons
- Changing ice
- Increased shipping season
- Different plants and animals in the area seeing plants that normally don't grow here

#### Adaptation

What are some things that we can do to adapt to the changing environment? What can we do in our everyday lives to live with the changes from climate change? Think about our houses, activities in winter, what happens when sea ice changes...

- Building communities to handle permafrost thaw
- Hunters to find safer, alternate hunting routes
- Being prepared for quick changes in the weather, especially when out on the land
- New building techniques and building stable structures



#### SCAVENGER HUNT ITEMS

\*Note: you cannot use the same item twice.

- 1) Come up with a team name and cheer.
- 2) Measure the temperature. \_\_\_\_\_ °C
- 3) Draw a picture of your favourite arctic animal. (use the back of the page)
- 4) Sound Scavenger Hunt: Listen for a sound.
  - a. What sound did you hear? \_\_\_\_\_
  - b. What made the sound? \_\_\_\_\_
  - c. How loud was it? \_\_\_\_\_
  - d. Describe something else about the sound.
- 5) Plant Scavenger Hunt: Look for a plant.
  - a. What type of plant did you find? \_\_\_\_\_\_
  - b. How tall was the plant? \_\_\_\_\_\_
  - c. What colours did it have? \_\_\_\_\_
  - d. Where did you find it? \_\_\_\_\_
  - e. How was its structure adapted to the area?
  - f. Describe something else about the plant. \_\_\_\_\_

#### 6) Animal Scavenger Hunt: Look for an animal.

- a. What animal did you see? \_\_\_\_\_
- b. How big was the animal? \_\_\_\_\_
- c. What colour was it? \_\_\_\_\_
- d. Describe something else about the animal.
- 7) Find:
  - a. Something that releases oxygen.
  - b. Something that reflects sunlight.
  - c. Something that can be reused.
  - d. A natural resource you depend on.
  - e. Something that looks delicious.
- 8) Sing a song that has a combination of 2 languages. What song is it? \_\_\_\_\_
- 9) Updating traditional hunting routes to reflect changes to sea ice thickness is a climate change adaptation measure. TRUE or FALSE?