

Earth Science 11 - Week 3: April 27 – May 1

Anticipated time required: 3 hours

New learning objective: **Weather vs Climate, Climate Change**

Goals to be completed:

1. Understand and describe the differences between regional weather and climate.
2. Develop and understanding of how climates can naturally change, as well as how they can be artificially changed
3. Complete atmosphere unit test

Please read through the lesson package and watch all of the videos included within it. The formal portions to submit are indicated throughout the package. These can be sent to Charlie.feht@yesnet.yk.ca either as a scanned and uploaded PDF attachment to email, or as a jpeg image file.

Upcoming next week:

An introduction to space and the universe

The electromagnetic spectrum

The Big Bang Theory

Section 1: Weather vs Climate

Watch the following video to fill in the blanks about what the differences between weather and climate are.

<https://www.youtube.com/watch?v=6Aigcv7UnTU>

- Weather is the ___ **short term** ___ condition of the atmosphere in a given ___ **location** ___.
- The weather can be ___ **Anything** ___ on any given day.
- Weather can ___ **fluctuate** ___ greatly.
- Climate is the ___ **long term average** ___ condition of the atmosphere for a location.
- Weather is affected by ___ **temperature** ___, ___ **wind conditions** ___, ___ **humidity** ___, ___ **cloud cover** ___, ___ **precipitation** ___, ___ **air pressure** ___.
- Climate is affected by ___ **latitude** ___, ___ **proximity to water** ___, ___ **mountain ranges** ___, ___ **elevation** ___, ___ **ocean currents** ___, ___ **wind or pressure belts** ___.
- Climate change is a change in the climate ___ **patterns** ___ attributed largely to the ___ **increased** ___ level of ___ **carbon dioxide** ___ produced by the use of fossil fuels.
- Climate change refers to ___ **slow** ___ changes that are generally seen when looking at ___ **long term** ___ trends, not at ___ **day – to - day** ___ weather conditions.

Activity: Label the following statements below as an example of weather or climate:

1. A cold arctic air mass is moving south towards Whitehorse bringing extended periods of -40°C temperatures. **Weather**

2. A maritime polar air mass is forming in the Gulf of Alaska and will bring with it periods of heavy rain and snow through the white pass. **Weather**
3. A stationary front has formed over British Columbia's lower mainland resulting in heavy fog. **Weather**
4. The Okanagan Valley of British Columbia's interior is dry and arid thanks to the protection of the Rocky Mountains. **Climate**
5. Avoid travelling to southeast Asia between November and March because it's monsoon season. **Climate**
6. Despite a relatively high latitude, the UK rarely feels extreme cold or hot swings thanks to the motion of the north Atlantic current ocean. **Climate**

The Voice of Change Answers

1. The green house effect is the warming of the atmosphere due to trapped gasses holding the sun's heat in.
2. In the past 200 years more gas has been gathering than naturally exist in the atmosphere, throwing the natural greenhouse effect out of balance.
3. Average global temperatures will increase.
4. Reduce emissions of GHG by 40 to 70 % by 2050, and emissions must drop to zero by 2100.
5. The Paris agreement is a collective UN framework around climate change that was signed by 194 countries in December 2015.
6. Some people want action to speed up, as data shows and warmings have been given that the planet is only 12 years away from a catastrophe.
7. Greta became sad, scared and depressed when she learned about climate change.
8. Greta began to skip classes on Fridays to protest climate change. Social media spread the word about the protests and more students began to take part in the movement.
9. On March 15th the first global student climate strike took place. 1.6 million students participated in it worldwide.