Science 1206 Lesson Plan

Grade: 10

Unit: Weather Dynamics

Number of Classes: One, 60-minute period

Topic: Formation and characteristics of high and low pressure systems.

Outcomes*:

32.0 Describe and explain heat transfer in the hydrosphere and atmosphere and its effects on air and water currents. [GCO 3]

33.0 Describe and explain the effects of heat transfer within the hydrosphere and atmosphere on the development, severity, and movement of weather systems. [GCO 3]

- Students are expected to explain the formation of high and low pressure systems and describe their characteristic wind movements and associated weather.

Newfoundland and Labrador Science 1206 Curriculum Guide (page 78)

Materials:

- Pencils and scissors
- Two empty plastic water bottles with caps (per student/group)
- Markers
- Resource booklets and handouts
- Smartboard

Pre-Requisite Knowledge:

- Convection Currents
- The Water Cycle

Procedure:

- Begin the class with the KWLM Chart to assess student prior knowledge on high and low pressure systems. Some students may have heard these terms on the news or from meteorologists on social media. It will also serve as a self-reflection tool to allow students to reassess their learning and highlight areas of strengths and areas to focus on when the lesson has concluded.

- Second, display the Environment Canada website on your digital smartboard and find areas of the country that are sunny and other areas that are active with precipitation. Distribute the handout, "Weather Around the Country" and complete it together with discussions and observations.

- Next, distribute the materials and procedure sheet, "Construction of Handheld Pressure Systems" to construct the water bottle pressure system manipulatives. You may have to make your own set first to discover which cut technique works best. It is also possible to show this demonstration without water bottles and simply use your hand. See a separate resource from the AMS (American Meteorological Society) which is included in this lesson plan packet which explains this hand model. Included in the AMS resource is a handout that explains high and low pressure systems in great depth.

- Discuss what the water bottles are illustrating and how it relates to air movement on a larger scale. Have students write an entry in their science journals and/or complete the KWLM Chart.

Conclusion:

- Ask students to think about the air movement with each weather system and why sunny weather is associated with high pressure and why active, unsettled weather is linked to low pressure systems.