



Grade 5 Weather Unit Resource Package

03.12.2015

Jenna deBoth
University of Regina
ESCI 310

Overview

This resource package was developed to supplement the Grade five unit on Weather. The resources found in this document are from a variety of sources and range from teacher resources to student activities. The real unit plan can be found [here](#). This resource package is organized based on outcome and indicator basis. Each section is a outcome from the unit with the indicators below. The resources have been placed under what indicator that they belong to and there is also a short writeup about how it can be used in a Weather Unit.

Outcomes

1. WE5.1 Measure and represent local weather, including temperature, wind speed and direction, amount of sunlight, precipitation, relative humidity, and cloud cover. [CP, SI, TPS]
2. WE5.2 Investigate local, national, and global weather conditions, including the role of air movement and solar energy transfer. [SI]
3. WE5.3 Analyze the impact of weather on society and the environment, including technologies that help humans address weather conditions. [DM]

WE 5.1 Measure and represent local weather, including temperature, wind speed and direction, amount of sunlight, precipitation, relative humidity, and cloud cover.

Indicators:

- A. Pose questions about local weather conditions and methods of collecting weather data.
 - a. <http://www.easypacelearning.com/all-lessons/english-level-2/46-weather-asking-questions-and-types-of-weather-english-lesson> This website focuses on using the weather vocabulary in an english lesson. This is a great tool for teachers to use as a basis for creating an interdisciplinary lesson regarding asking questions about local weather and the language. used to describe weather.

B. Compare strengths and limitations of methods and technologies used historically and currently by different people around the world to obtain information about the weather.

- a. <http://www.physics.uwo.ca/~whocking/p103/instrum.html> This website can be used for a teacher's background knowledge of obtaining weather information in current and past times. This is not a student resources as it has more complex language as well as it is slightly unappealing to the eye.

C. Classify clouds as stratus, cumulus, cirrus, or "other", compare results with others, and analyze why results may vary.

- a. https://www.nasa.gov/pdf/62317main_ICs_Clouds.pdf This resource contains various lessons regarding clouds and how clouds are formed. These are a great support for teachers who are looking to create lessons about clouds and cloud formation. This resource also provides a small amount of background information for teachers to use.
- b. http://www.rhfleet.org/sites/default/files/files/lesson-plans/tw_ClassifyingClouds.pdf This resource is a lesson plan about classifying clouds. This is a teacher resources that would provide teachers with a lesson that could be adapted to their classroom. This lesson also provides another way to look at teaching about clouds to students.

D. Use a technological problem-solving process to design and construct simple weather instruments (e.g., wind vane, rain gauge, thermometer, barometer, and anemometer).

- a. http://oceanservice.noaa.gov/education/for_fun/BuildyourownWeatherStation.pdf In this document, teachers are provided with basic instructions on how to make different weather instruments such as as anemometer or wind vane. This resource also provides instructions on how to make a hydrometer which is sometimes left out of weather instrument creations. This is a teacher and students resources as the teachers can use it as a basis for instructions or the students can use it as is, with the correct materials, to create those weather instruments.

E. Explain the function and purpose of simple weather instruments.

- a. <https://climate.ncsu.edu/edu/k12/instruments> This website provides loads of background information about the different weather instruments and how they work. This is a teacher resource as it provides background information about the instruments.
- b. <http://easyscienceforkids.com/weather-forecasting-instruments/> This is a student friendly resource where students can read, look at pictures and watch videos about how weather instruments work.

- F. Compile and display local weather data (e.g., temperature, wind speed and direction, amount of sunlight, precipitation, relative humidity, and cloud cover) for a given time interval (e.g., hourly throughout the day, daily for one week, and weekly for one month) using a weather journal, tables, charts, diagrams, and graphs.
- <http://www.victoriaweather.ca/SchoolUse.php> This resource is a teacher resource. The purpose of this website is to show how schools are using their weather stations to do more than tell the weather. website has great questions to ask yourself as a teacher, but also things to think about when you are teaching students about collecting and discussing weather data.
- G. Construct a wind rose to determine the predominant wind direction in a region over a given time period.
- <http://www.mtavalanche.com/weather/windrose> This resource can be used by students to gain a basic understanding of what a wind rose is, what it looks like and how it works. This could be used as a basis for teacher background knowledge.
 - <http://kids.britannica.com/comptons/art-179575/This-scale-of-winds-is-adapted-from-one-developed-by> This resource is a student resource to help them understand wind and how the beaufort scale for understanding and illustrating wind strength
- H. Evaluate, using student-developed criteria, the effectiveness of a personally-constructed weather instrument.
- <http://boyslife.org/hobbies-projects/projects/15293/making-your-own-weather-instruments/> This website provides teachers with another resource to have students build their own weather instruments. I think that this would be effective if the teacher also had a few real versions of the weather instruments so that students could compare and contrast the results between the two.
- I. Construct a sample weather map for their region, indicating the temperature, wind speed and direction, precipitation, and cloud cover at a given time.
- <http://www.glencoe.com/sec/science/activities/weather/> This resource provides students with an understanding of what a weather map is made up of. The only problem with this resource is that it is based in the United States and therefore some of the information can be confusing for Canadian students. If you were a teacher in the states, then this resources would be perfect to show weather maps.

- b. <http://education.nationalgeographic.org/activity/create-weather-map/> This resource is an lesson idea for teachers to adapt to their classroom that is focused on the different types of weather conditons and how they are represented on a weather map.
 - c. <http://www.tryscience.org/lp/deciphering-weather-maps> This resourcce is a multi class period less that provides students with an understanding of the meaning of weather maps and how to use them. This resource is a teacher focused resource as it would have to be adapted to fit the students in grade five.
- J. **Generate simple conclusions about the prevailing local weather conditions.**
- a. <http://www.scholastic.com/teachers/lesson-plan/forecast-weather-weather-watch-lesson-grades-3-5> This resource is a lesson that focuses on students generated conclusions regarding weather by comparing and contrasting weather maps and data.

WE5.2 Investigate local, national, and global weather conditions, including the role of air movement and solar energy transfer. [SI]

Indicators:

- A. **Pose questions about the characteristics of local, national, and global weather conditions.**
- a. <http://beyondpenguins.ehe.osu.edu/issue/weather-and-climate-from-home-to-the-poles/hands-on-science-and-literacy-lessons-about-weather-and-climate> This resource focuses on hands on experiences with understanding climate and weather. This is a resource that provides teachers with background information about weather and climate which can be used to discuss the weather in multiple areas around the Canada and the world.
- B. **Demonstrate properties of air, in that air takes up space, has weight, expands and rises when heated, exerts pressure, and moves from areas of high pressure to areas of low pressure.**
- a. http://www.education.com/activity/article/Learn_about_air_first/ This resource is a different take on how to show students that air's properties. This is another great idea of how to show students that air does exists and impacts things in our daily lives.

- C. Design and safely carry out an experiment to determine the effects of solar energy on different surfaces (e.g., water, soil, sand, asphalt, concrete, grass, and wood).
- <http://www.need.org/files/curriculum/guides/The%20Sun%20and%20its%20Energy.pdf> This document is a teacher based resource which provides ways to discuss our need for solar energy in regards to language arts. This resource could be used in relation to experiments about solar energy on different surfaces.
 - <http://www.builditsolar.com/Projects/Educational/educational.htm> This website is filled with different solar energy activities and projects that students could work through the
- D. Develop simple conclusions about the relationship between the amount of energy absorbed by a material and the nature of the material.
- <http://www.hometrainingtools.com/a/solar-energy-science-projects> This lesson plan focuses on seeing the difference between how solar energy affects different colors of materials. This lesson particularly focuses on the difference between black and white materials and how they absorb solar energy. This lesson would be in conjunction to other lessons involving other materials and how they absorb sunlight.
- E. Relate the transfer of energy from the sun to the heating of Earth's surface by providing examples of surfaces that heat at different rates and locations (e.g., desert, forest, island, and summerfallow field) that have different temperatures.
- <http://earthobservatory.nasa.gov/Features/EnergyBalance/page3.php> This resource is background information about how the earth absorbs solar energy and the impact that it has. This is important information to help teachers prepare for creating an experiment that shows how the earth heats by the energy produced by the sun.
 - http://www.windows2universe.org/earth/climate/cli_energyalbedo.html This resource provides background information as well as visuals to understand how solar energy is transferred to the earth's surface and how it impacts the earth.
- F. Describe the characteristics of severe weather events, such as hurricanes, tornadoes, blizzards, hailstorms, droughts, and tropical cyclones, including the role of air movement and solar energy transfer in those events.
- <http://stem-works.com/subjects/5-extreme-weather/activities> This resource provides teachers with various lessons about extreme weather that can be done with students. This is a great starting point for teachers if they are

interested in creating hands on experiences around extreme weather conditions.

- G. Relate weather extremes (e.g., hottest air temperature, lowest air temperature, greatest rainfall, highest wind speed, and heaviest hailstone) to specific locations in Canada and on Earth.
- <http://www.thecanadianencyclopedia.ca/en/article/extreme-weather-in-canada-feature/> This resource is background information for teachers who are created a lesson around the weather extremes in Canada. This background content is important as it allows teachers to understand facts such as the hottest and lowest temperatures recorded in Canada.
- H. Compare weather conditions locally, regionally, and across Canada at various times throughout the year.
- St. Clair, C. *Canada's Weather*. 2009. Firefly Books. Buffalo, New York. Print.** This textbook provides a great overview of comparing and contrasting weather across different regions in Canada. This is a great tool for teachers to use to develop a strong background knowledge about the weather in different regions in Canada.
- I. Examine weather lore and animal behaviours in traditional and contemporary cultures as tools to predict weather conditions.
- <http://www.readwritethink.org/classroom-resources/lesson-plans/weather-detectives-questioning-fact-775.html?tab=4#tabs> This resource is multiple activities that focus on weather sayings or lores and how they are used to predict weather. Session two is particularly interesting as it provides a researching opportunity for students. This resource is a teacher based resource that could be used to help teachers in planning about weather saying and lores as used to predict weather.
 - http://www.readwritethink.org/files/resources/lesson_images/lesson775/CollectionSayings.pdf This resource provides teachers with a collection of weather sayings that have been gathered. This could be used in conjunction with the resource directly above this one.
 - http://www.erh.noaa.gov/rnk/Newsletter/Fall_2010/folklore.html This resource is another collection of weather sayings that teachers can use when exploring and explaining weather sayings and lores.
- J. Predict patterns in local, regional, and global weather over a given time frame (e.g., a day, a week, a month, and a year).
- <http://www.discoveryeducation.ca/teachers/free-lesson-plans/weather-maps.cfm> This website provides a lesson that could be adapted to look at weather maps and use the information to predict the weather over a day or

week. Discussions around climate can help with predicting weather over a month and a year.

K. Identify examples of local, national, and global weather phenomena that Canadian scientists are currently studying (e.g., UV protection, wind chill, ozone layer, seasonal snow cover, and temperature trends).

- a. <http://education.nationalgeographic.org/media/ocean-currents-and-climate/> This website is a teacher focused resource that provides background information about ocean currents and climate. This could be used as background information to show students the connection that weather (temperature) has to the way that our bodies of water as it works, develop and move.

WE5.3 Analyze the impact of weather on society and the environment, including technologies that help humans address weather conditions. [DM]

Indicators:

A. Explain the purpose of different types of information (e.g., satellite and radar maps, weather watches and warnings, summary statistics, travel advisories, and air quality reports) that weather forecasters provide.

- a. https://weather.gc.ca/warnings/index_e.html?prov=sk This resource is a great example that teachers can use to show students what a weather watch and warning for saskatchewan looks like. This also can spawn conversations around what is the purpose of weather watches and warnings as well as why they are important for daily life.

B. Research how and why people in their communities use short- and long-term weather forecasts in their daily lives.

- a. <http://kidsactivitiesblog.com/49813/weather-activities> This pine cone lesson is a great resource for teachers who are interested in showing kids the connection between weather and nature. This activity could easily be adapted to fit into a grade five classroom.

C. Analyze the impact of weather conditions for a particular region on the lives and livelihoods of people in that region, including choices of food, shelter, clothing, transportation, and employment.

- a. <http://www.tryscience.org/lp/global-warming-effects-rising-sea-levels-cities>
This resource is a lesson plan that could be used with students to provide them with the opportunity to see how rising sea water would affect the lives of people in different cities. This resource would have to be adapted to fit to the classroom, but is a great start to exploring rising sea waters as a result of global warming.

D. Research effects of short- and long-term changes in weather on the lives and livelihoods of people locally, nationally, and globally.

- a. <http://m.livescience.com/8639-change-seasons-affects-animals-humans.html>
This resource provides background knowledge about how changes in season or weather affects animals and humans. This is a great start to introducing global warming and irregular weather changes.

E. Relate weather conditions, and changing weather conditions, to the activities and behaviours of animals.

- a. <http://www.learnnc.org/lp/pages/4325>
This resource is a lesson plan based around understanding how weather can be predicted based upon the behaviours of animals. This is a great starting point for teachers when they are thinking about starting a lesson about relating animal behaviors to weather predictions.

F. Explain the effects of different types of severe weather on people, communities, and the environment, including personal safety preparations for various severe weather events.

- a. http://www.canadianliving.com/life/travel/20_great_canadian_winter_activities_and_traditions.php
This resource is focused around different Canadian Winter activities. This resource can be used by teachers to develop a discussion around the different activities that are done in the winter and how the extreme cold weather in our winter affects how we do these activities. Canadian winters are used as an example in Saskatchewan as we are greatly impacted by the winter weather.

General Resources

<http://www.spiritsd.ca/learningresources/FNM%20Resources/GR5%20Weather,%20Earth%20and%20Space%20Science.pdf> This resource is focused around integrating First Nations and Metis content into the weather unit. For Saskatchewan teachers, this is an excellent resource as it provides Saskatchewan specific content and outcome connections.