Air Quality Health Index - Alberta

http://www.airquality.alberta.ca/map

Everyone requires fresh clean air to stay healthy. Every student has experience with air but most do not know what it is made of or that it gets dirty just like their bedrooms. A bedroom gets messy by things we do but it also gets dusty by what is being brought in by nature. The air is the same, it can get dirty because of factories but it can also get dirty from nature like forest fire smoke.

Air quality health index (AQHI) website provides a variety data (particulate matter, CO_2, ozone,…) that can be used in a multitude of ways in the classroom. This data is real time and can be easily reviewed from the website for the previous year from several locations in Alberta. With the POCKETLAB AIR https://www.thepocketlab.com/pocketlab-air you are able to gather local real time data that can be compared to the data that you get from AQHI site.   The last couple of years we have had days at the school in which we needed to stay in school because of poor air quality. During several large forest fires the smoke in the air caused the fine particulate matter (FPM 2.5) in the air to sky rocket and cause medical issues for people. Being able to connect data with real-life situation in which the students have experienced gives me a place that I can connect the concrete with the less concrete. I will be able to show students, even when the air looks clean, that there is particulate matter in the air and being able to connect it to natural and human events. Then we can transition to health effects and why we stayed inside during the days that the air quality was poor. It will allow the students, when they use the POCKETLAB AIR, to be able to understand and connect the data they collect to be able to come up with good questions. They will be able to make educated tests to discover what can cause increase FPM 2.5. The information that can be gathered through this site can be a stepping stone for the students in the future.

You are able to retrieve data in graph form or table form.
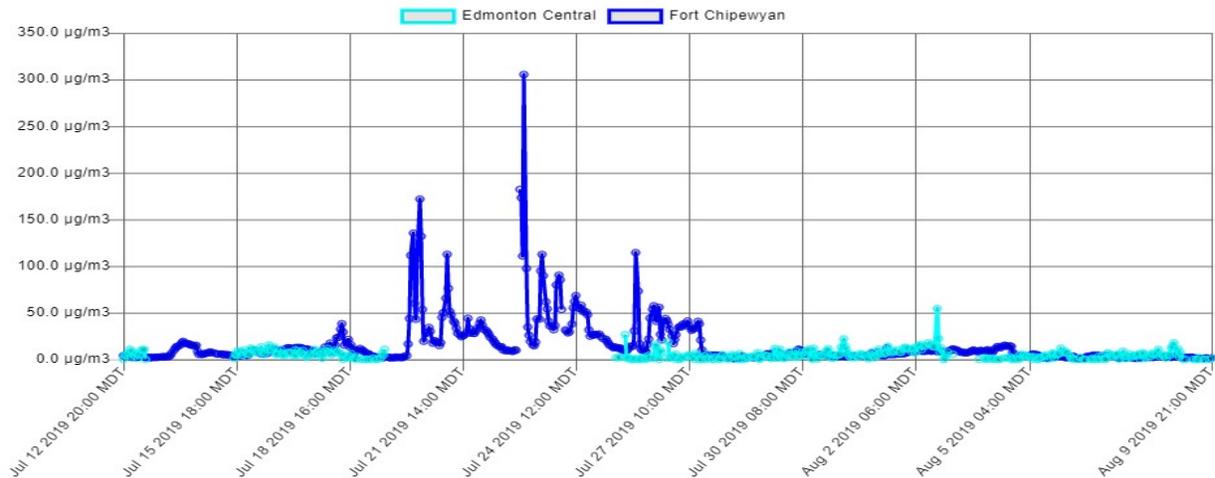
Data requested for fine particulate matter (µg/m3) for the		
Date	Edmonton Ce	Fort Chipe
Jul 25 2019 20:00 MDT	0.7	10.7
Jul 25 2019 21:00 MDT	1.8	14
Jul 25 2019 22:00 MDT	0	13.8
Jul 25 2019 23:00 MDT	0	14.4
Jul 26 2019 00:00 MDT	0	30.6
Jul 26 2019 01:00 MDT	1	114.5
Jul 26 2019 02:00 MDT	0	73.2
Jul 26 2019 03:00 MDT	0	16.6
Jul 26 2019 04:00 MDT	0	11.1

The AQHI website is a great resource for gathering data about air quality. It is easy to use and makes information easily accessible. There are many opportunities for teachers to integrate this data into their classrooms. Here are a few examples of where the AQHI data could be used in teaching the Alberta curriculum in multiple subjects.

Program of Studies Alberta health and Life Skills https://education.alberta.ca/media/160196/health.pdf

General Outcome 1 K-9

Wellness Choices

• Students will make responsible and informed choices to maintain health and to promote safety for self and others.

Program of Studies Alberta Social Studies - https://education.alberta.ca/media/159594/program-of-studies-k-3.pdf

General Outcome –

Research and information make connections between cause-and-effect relationships from information gathered from varied sources

quality of life

Program of Studies Alberta Mathematics
https://education.alberta.ca/media/3115252/2016_k_to_9_math_pos.pdf

• explore and demonstrate mathematical relationships and patterns

 • organize and display data

I believe it is crucial for people learn about data and its uses. This is a topic that has to be taught, it is not something that comes innate. We have to learn how to get data, record data and interpret data. We also need to know how to find data that we can use. This starts in school and I enjoy being able to be part of that learning. Data has to begin being taught at the early stage of Mathematics. During math the students begin to learn how to collect data, represent data in different ways and analyze data. Learning about patterns and correlations is a cornerstone in the scientific method. Today there a variety of technology that are being used to collect and analyze data. Students need to be exposed to a variety of technologies to ensure they will be capable knowledgeable citizen in the world. Engineering design uses data all the time to ensure their designs are safe, practical and functional.

As we focus on students becoming global citizens data can be used to engage and motivate students. Whether its showing graphs of the rising CO_2 levels in the air, growth rate of people in the world, or how infections and virus spread, its data that drives that information. During social class you can use data about the climates and see if there is a correlation with the design of the houses in the different areas. Much of the data we collect is used to show if there is a correlation between two, sometime apparently, independent events. With the prevalence of environmental and social justice issues that our student will be asked to deal with will be essential for the students to become comfortable with data. Even though the students in elementary classroom maybe to young to tackle these issues, it important that they begin to see data being used to connect human activity to environmental changes or to quality of life issue.