

BACKGROUND

In the Climate Change: Adaptation video, we learned that municipal development plans incorporating climate change are becoming more common. Villages, towns, and cities are looking at long-term planning that limits where developers can build and includes greater specifications for their buildings. One significant driver of these climate change-based plans in the Atlantic provinces are the effects of increasing precipitation levels due to climate change. In this lab/project, you will model historical precipitation levels of your area for the last 50 years for a given month of your choosing.

CURRICULAR CONNECTIONS:

Environmental Science 12: Unit 2 (Sustainable Development) and Unit 3 (Investigating Environmental Issues)

PROJECT

1. Access the site <http://climate.weather.gc.ca/> and find your local area's weather. If you can't find your specific community or there isn't enough data¹, use the closest town or city.
2. Build a table in MS Excel that includes month, year and total precipitation for at least 50 years.

YOUR TABLE COULD LOOK LIKE THIS:

Date	Rain (mm)	Snow (cm)	Total Precipitation* (mm)
March, 1980	54	4	61

* The sum of the total rainfall and the water equivalent of the total snowfall in millimetres (mm), observed at the location during a specified time interval

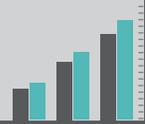
3. Using MS Excel, plot your data into a graph and add a trend line.

QUESTIONS

1. What are some observations you can make from your data?
Look at the graph and consider high precipitation years, low ones and any other unusual things that you've noticed.
2. Answer the following questions by finding the trend line of your data.
 - a) What is the slope of your trend line? (the equation in slope-intercept form)
 - b) Based on this trend, what would you predict the precipitation to be in the year 2050 for your community? For the year 2100? For the year 2200?
 - c) Are these predictions from part B realistic? Explain why or why not.
3. Based on the climate projections you've made, do you think that your community will need to make changes to their municipal development plan?

CHALLENGE

Using the same source for data, make a chart and graph of average monthly or yearly temperatures. Make observations and project what the average temperature will be over the next 200 years.



ADAPTATION VIDEO QUESTIONS

1. What does a “state of emergency” mean for a community?
2. What are culverts and why are they significant to precipitation?
3. Why is water considered the “new fire” for Atlantic Canada?
4. How can municipal development plans potentially influence private land developers?
What are some strategies employed by governments to help mitigate the effects of storm surges and flooding?
5. Why is climate change compared to the debate over smoking and lung cancer?

ADAPTATION CONCEPTUAL QUESTIONS

1. How are communities adapting to climate change and its impacts?
What might your community do to adapt to climate change?
2. Will water be the new issue for communities across Canada?
How might climate change impact central, western and northern Canada differently?
3. Why is having a municipal development plan important for a community in terms of climate change?
What are some restrictions that communities have placed on development?

FOR MORE INFORMATION VISIT:

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