Real world Example

Air Pressure

History of the Barometer

Today we will be looking at how air pressure changes over altitudes. Things to consider while watching the video. What forces are acting upon a stable (non-moving) packet of air?

Use this link to follow a video to get some background information for this activity.

https://www.youtube.com/watch?v=EkDhIzA-IwI

Data creation

	A	B	C	D	E
1	Height	Pressure	Difference	2nd Difference	B#/B#
2	0	XXXXX			
3	1000	XXXXX	=B2-B1		=B1/B2
4	2000	XXXXX	XXXXX	=C3-C2	XXXXXX
5	3000	XXXXX	XXXXX	XXXXXX	XXXXXX
6	4000	XXXXX	XXXXX	XXXXXX	XXXXXX
7	5000	XXXXX	XXXXX	XXXXXX	XXXXXX
8	6000	XXXXX	XXXXX	XXXXXX	XXXXXX
9	7000	XXXXX	XXXXX	XXXXXX	XXXXXX
10	8000	XXXXX	XXXXX	XXXXXX	XXXXXX
11	9000	XXXXX	XXXXX	XXXXXX	XXXXXX
12	10000	XXXXX	XXXXX	XXXXXX	XXXXXX
13					

Using the blue box on this website, https://www.mide.com/pages/air-pressure-at-altitude-calculator , create an excel sheet that mirrors the image. Set the excel spreadsheet to have two significant digits after the decimal.

Create a graph

What kind of graph do you have? Linear, Quadratic, or Exponential?

Which column from the Excel sheet had similar numbers?

Using Newton's laws explain why a packet of stable air at a lower altitude has higher pressure then a packet of stable air at a higher altitude.

Questions to consider for tomorrow: Barometers and Storms

When a barometer falls, or steadily drops in pressure, you usually expect storms to come. What would cause a barometer to read lower? What is happening to the air? When the barometer increases you will usually see clearer skies, why?