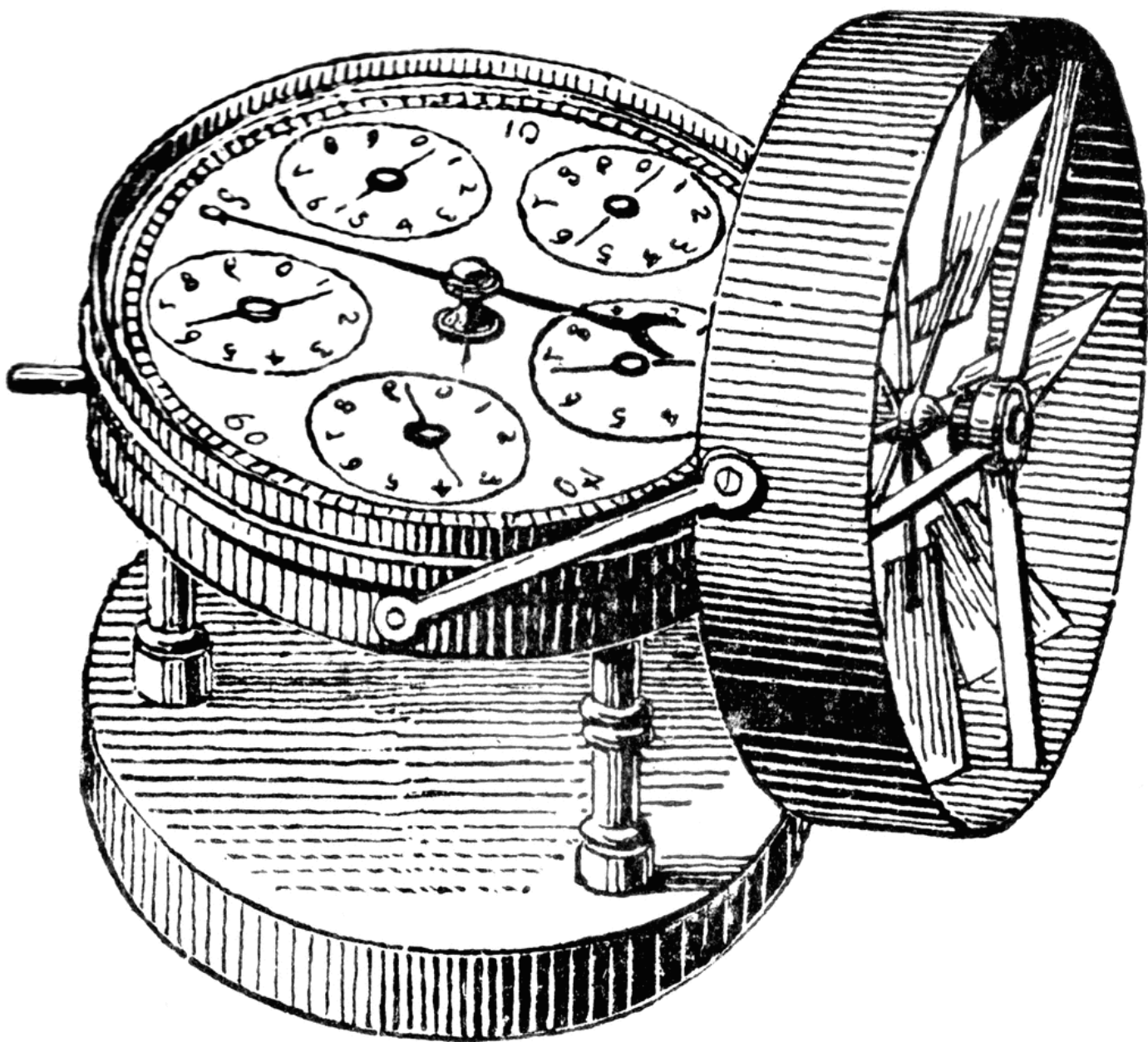


Let's Investigate
Weather!



Hi! I hope you enjoy exploring math with us this year. I created these pages for my children, but I am happy to share them with you so your family can enjoy them also. I have tried to include a variety of activities so they can be used with children of all ages. Just print off the activities that you think will suit your children. Most of the activities are investigative, so you won't need an answer book. If you get stuck please email me and I will be happy to help. If the activities are research based questions I will provide links to help with finding the answers. I have also included a list of books, or web pages, you might enjoy to explore while looking at the topic. I hope you enjoy these investigations!

Created by Jo Buijs

Instagram

[nature_study_australia](#)

[Jo_mathinnature](#)

Please print these pages freely within your home. If you would like to share this resource, please link back to naturestudyaustralia.com.au. Thank you!

Any pictures are either my own work or have been sourced at

Clip Art ETC <https://etc.usf.edu/clipart/> (Images have been used according to the free classroom use license.)

Or

Wikimedia Commons https://commons.wikimedia.org/wiki/Main_Page

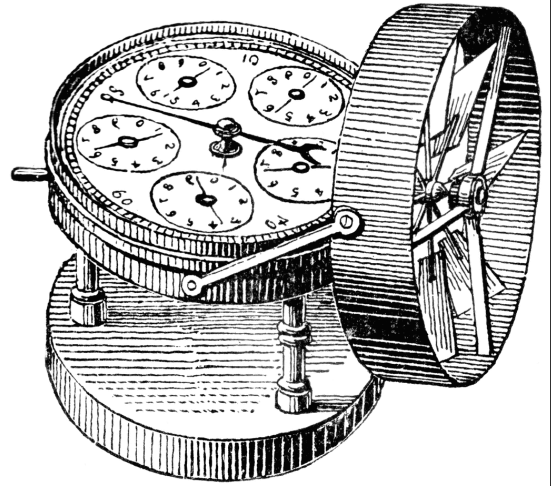
Front cover picture: William Dwight Whitney, *The Century Dictionary, an Encyclopedic Lexicon of the English Language* (New York: The Century Co., 1902):208

Temperature Picture: J. L. Comstock *A System of Natural Philosophy: Principles of Mechanics* (: Pratt, Woodford, and Company, 1850) 169

Do you know what this is?

If you said an anemometer you are right!

Find out what an anemometer is and what it does, write about it here

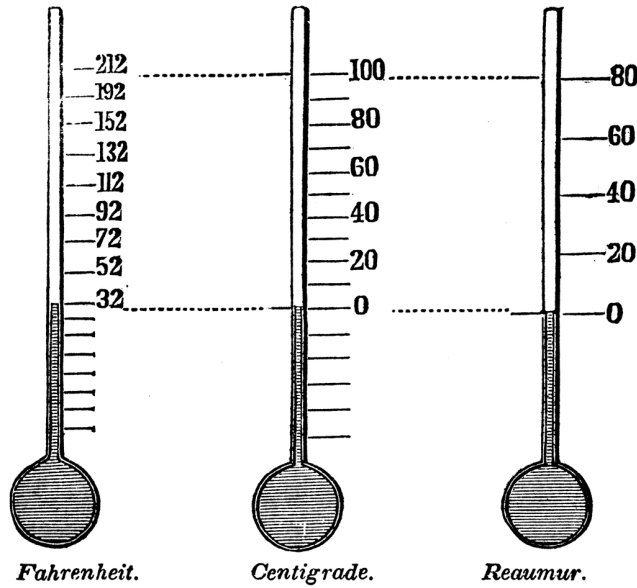


To measure weather scientists use instruments like the anemometer. Find out what other instruments are used to measure weather. Write about them here



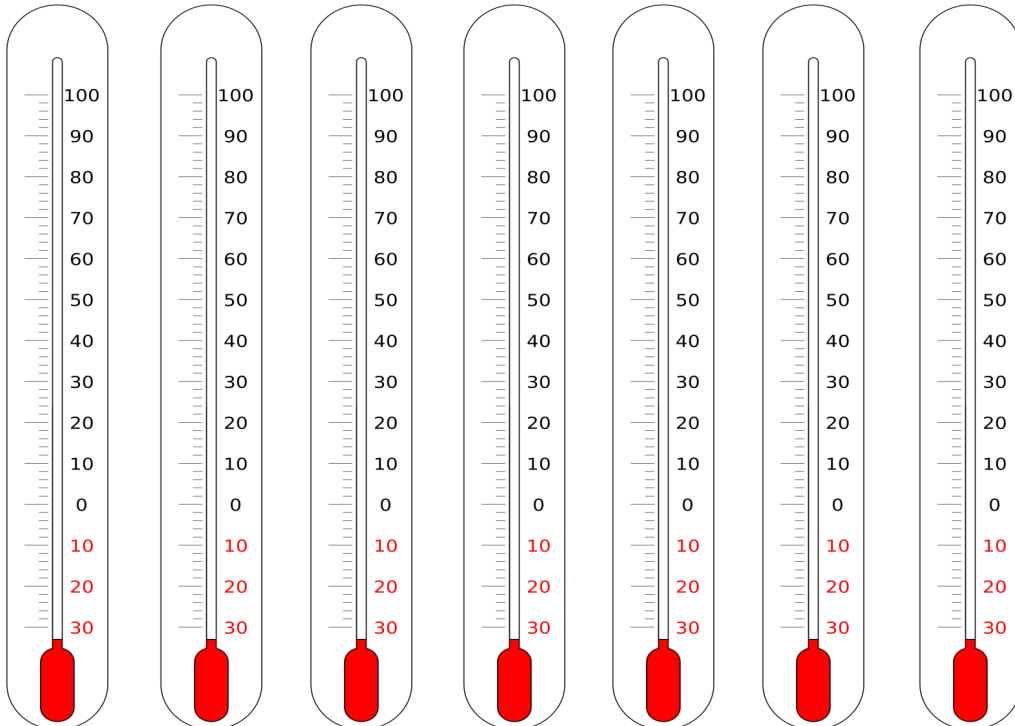
Challenge: *Create your own weather instrument book. Draw each one and describe how it is used. What units of measurement is used for each one?*

Temperature



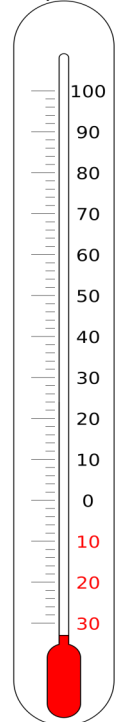
How hot or cold it is.

Record the temperature for a week.



Seven empty square boxes are arranged in a row, corresponding to the seven thermometers above them, for recording the temperature.

The Average
Temperature



HINT: Add all the temp. and then divide by 7.

Beaufort Wind Scale

BEAUFORT NO.	TYPE OF WIND	WIND EFFECTS	SPEED IN KM/H
0	Calm	Smoke rises vertically.	Less than 1
1	Light air	Smoke drift.	1-5
2	Light breeze	Leaves rustle.	6-11
3	Gentle breeze	Twigs in motion.	12-19
4	Moderate Breeze	Dust rising.	20-28
5	Fresh Breeze	Small trees swaying.	29-38
6	Strong breeze	Large branches in motion.	39-49
7	Near Gale	Whole trees in motion.	50-61
8	Gale	Twigs broken off trees.	62-74
9	Strong Gale	Slight structural damage.	75-88
10	Storm	Trees uprooted.	89-102
11	Violent Storm	Heavy structural damage.	103-117
12	Hurricane	Severe damage	118-over

Who has seen the wind?

Neither I nor you.

But when the leaves hang trembling,

The wind is passing through.

Who has seen the wind?

Neither you nor I.

But when the trees bow down their heads,

The wind is passing by.








Christina Rossetti

To do this week:

Go outside and watch for the wind. See if you can discover which direction it is blowing. Look at the Beaufort Wind Scale and then estimate the speed. Write down your speed and direction estimations for 1 week.

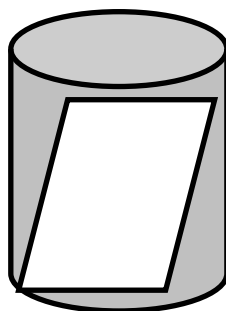
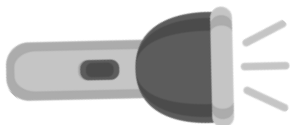
	<i>Speed</i>	<i>Direction</i>
<i>Monday</i>		
<i>Tuesday</i>		
<i>Wednesday</i>		
<i>Thursday</i>		
<i>Friday</i>		
<i>Saturday</i>		
<i>Sunday</i>		

Colours of the Sky

Violet		400nm
Indigo		425nm
Blue		470nm
Green		550nm
Yellow		600nm
Orange		630nm
Red		664nm

A Rainbow is a beautiful display of light that has been diffused into different wave lengths. You can create rainbows with some simple items. You will need a glass of water, a small mirror and a torch. Place the glass of water on the table. Put the mirror in the glass on an angle. Darken the room and then shine your torch on the glass.

What do you see? Why does this work?



Advanced Math Activities

Read this article on the BJUP website called ['How Math is Used in Weather Forecasting'](#)

Write an essay explaining how modern weather forecasting models work and explain some important applications of the numerical weather prediction.

Using weather data for your area create a graphic display demonstrating the current weather patterns for the last month.

Research: 1·How the Beaufort scale came into being and why it is still a useful tool·
2·Explain whether it is better to measure or to estimate wind strength· 3·Explain why we need a Beaufort Scale·

Helpful Links

Information on the Beaufort Scale [HERE](#)

Books, videos and links that you might find helpful...



Australia's Wild Weird Wonderful Weather

~ Stephanie Owen Reeder

Video Links

[Be a Weather Watcher ~ SciShow Kids](#)

[How are Weather Forecasts Made ~ EUMETSAT](#)

[Math and our Planet: Understanding climate and weather by CSIRO](#)

Links

[Interactive thermometer from Math is Fun.](#)

[Weather Worksheets for Kids](#)

[Preschool Math Worksheets](#)

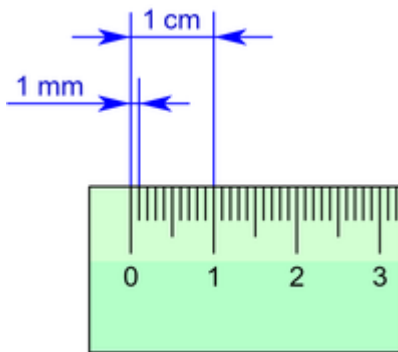
Math Skills and Terms to learn this month:

Measurement: How to read a thermometer. Millimetre and Nanometre meaning and use.

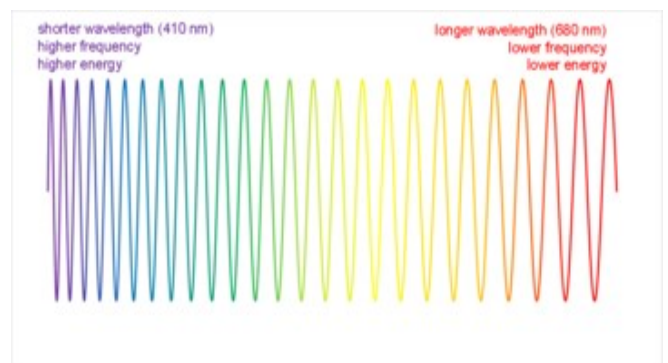
Estimation: Learn how to estimate wind directions and speed.

Average: Learn what an average is and how to calculate one.

Graphing Data: Using data gathered this month create a simple bar graph showing temperature for the younger students. Using weather information collected or sourced from the web, create a graphic display of current weather patterns.



A Millimetre is a metric unit of measurement equal to one thousandth of a meter.



A Nanometre is a metric unit of measurement equal to one billionth of a meter.

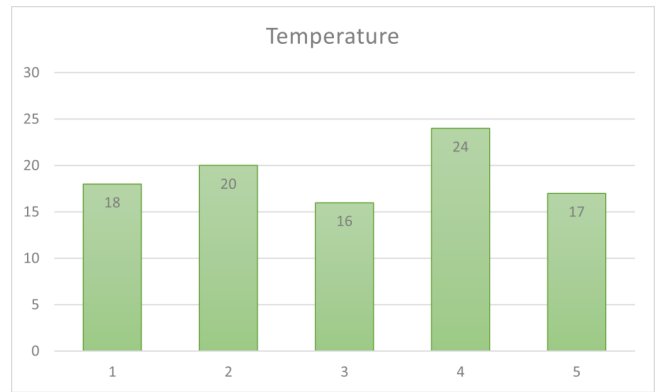
18°C	20°C	16°C	24°C	17°C
------	------	------	------	------

$$18 + 20 + 16 + 24 + 17 = 95$$

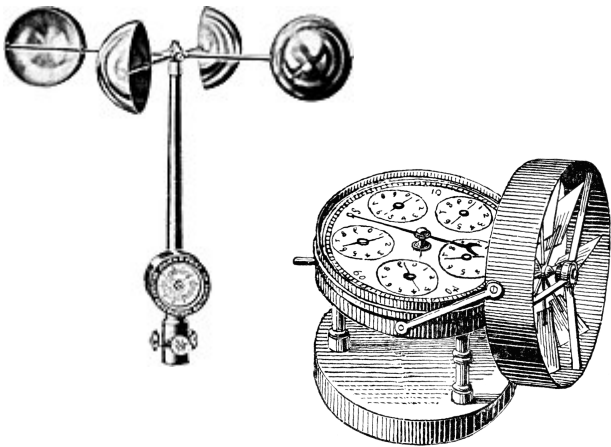
$$95/5 = 19$$

The Average temperature is 19°C

An Average is the central value in a set of data. You calculate the average by adding all the values and then dividing by how many values you have.



Bar Graph is a way to display data. Values are shown as bars.



Wind direction and speed is measured by a anemometer.



Temperature is measured by a thermometer



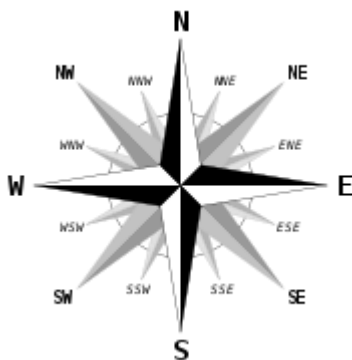
Precipitation is measured with a rain gauge.



Barometric pressure is measured with a barometer.

[File:Conant Decor Bronze Rain Gauge.jpg - Wikimedia Commons](#)

[Category:Barometers in the Museum of Science and Industry \(Chicago\) - Wikimedia Commons](#)



We use a compass to show direction.



Estimation is to find a value that is close enough to the right answer, usually with some calculation involved.

[File:Brosen windrose.svg - Wikimedia Commons](#)

[Children Measuring Liquid | ClipArt ETC \(usf.edu\)](#)