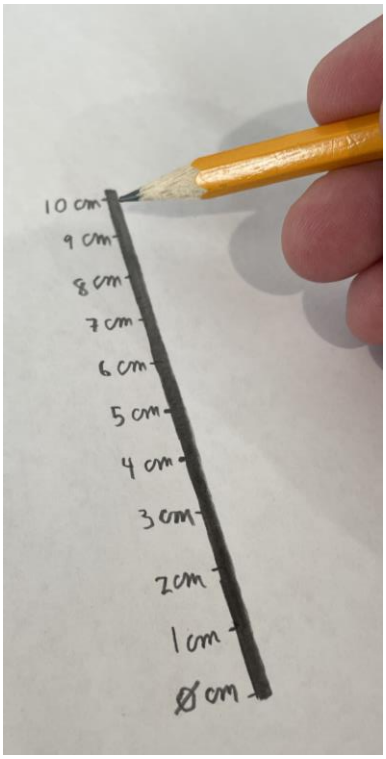
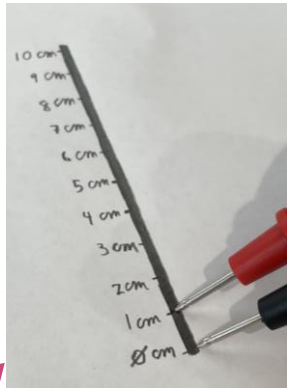
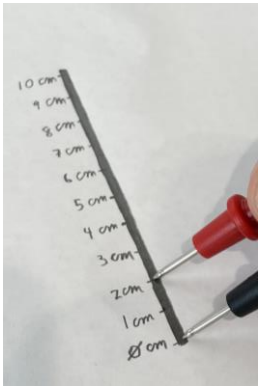
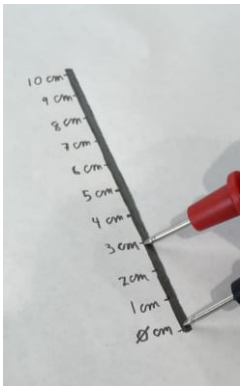


For this activity you will need a multimeter, ruler, pencil, and paper.

Using your pencil to make a dark/bold line that is approximately 10cm long and marked off in 1cm increments.

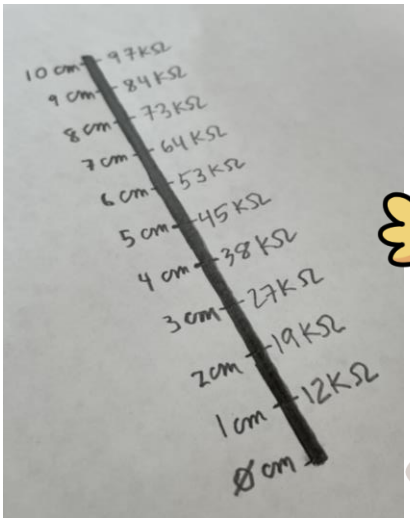


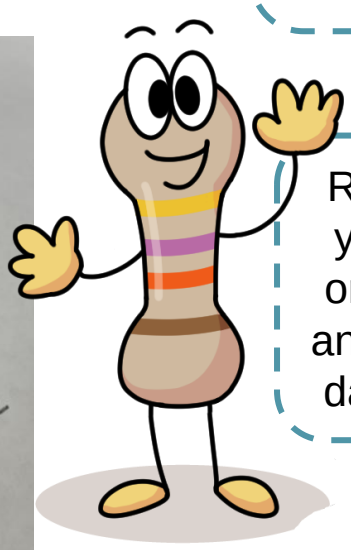




With the **black probe lead** positioned at the 0cm mark, slide the **red probe lead** to the 1cm mark and record the measure of resistance from the multimeter.

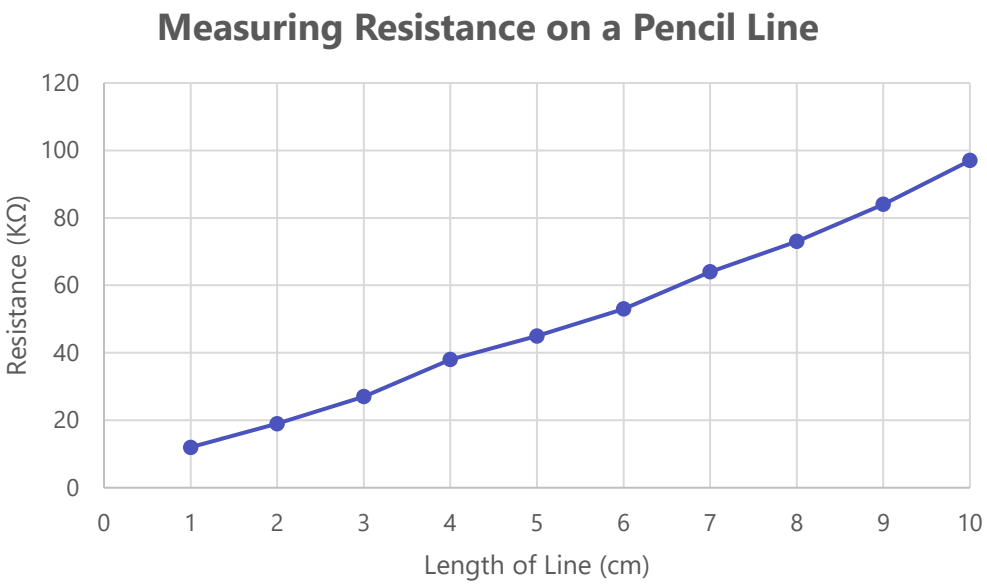
Keeping the **black probe lead** at the the 0cm mark, slide the **red probe lead** up the line and measure the amount of resistance at each centimeter marker until you have measured the resistance for the entire line.



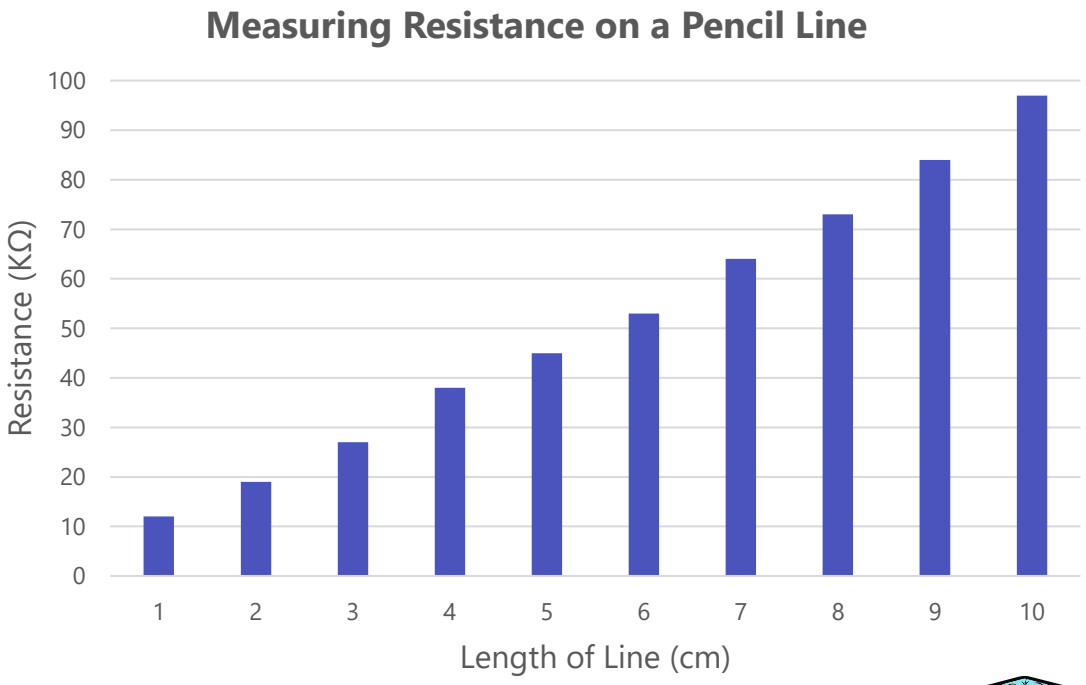


Record all your data on the line and on your data table.

Measuring Resistance on a Pencil Line	
Length of Line (cm)	*Resistance (KΩ)*
1	12
2	19
3	27
4	38
5	45
6	53
7	64
8	73
9	84
10	97



When you graph the data, the information is a bit easier to see. What are some other ways you can communicate the data collected to others?



Here are some other things to think about and investigate! Use your journals to write down your thoughts!

Did you notice anything else about the pencil line that affected the amount of measured resistance?

Explore if different pencils have different measured resistance!

Everyone's data looks a bit different. Why do you think that is?

Try measuring the resistance of lines with different thicknesses and lengths!

Based on your data, can you guess the resistance of any point on the line? How do you know?

Create a line with the least/most amount of resistance in the class!

What does the data tell you about the relationship between the measured resistance and the length of the pencil line?

What else can you investigate?