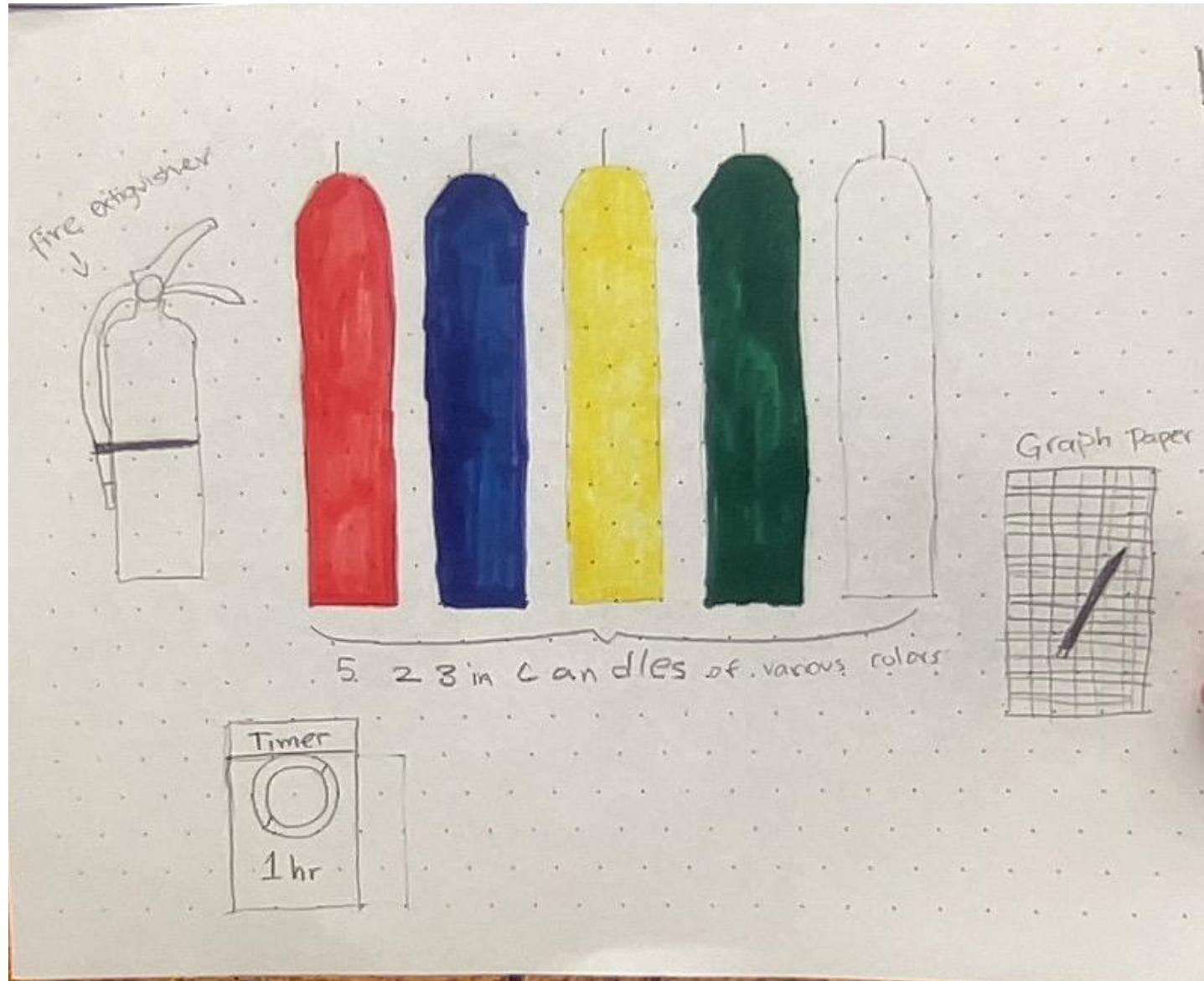


Research Question

I will test the effect of the color of candles on the speed at which it burns. This is because I have observed that there are many different colors and scents of candles and I am curious as to whether the color affects the speed at which the candle burns.



Labelled Diagram



Hypothesis

My hypothesis is that different colored candles will have little to no impact on the speed of the candle burning. I know this is testable because it requires household and easily found materials, and I can control many variables.

Variables

Independent and Dependent Variable

Independent- Color of
candles

Dependent- Distance
burned

Controlled Variables

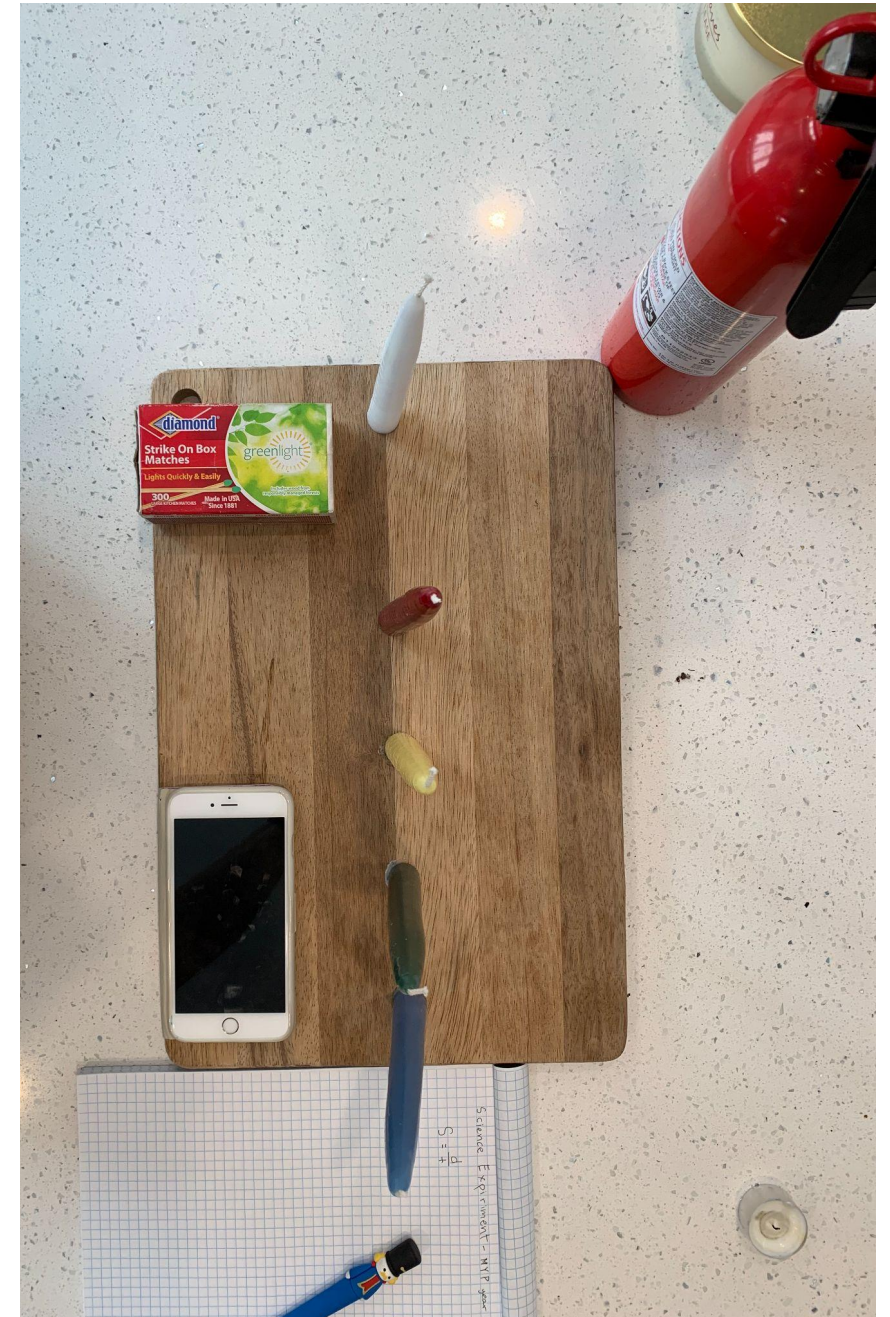
- The condition of candles- Could affect validity of results- All are from and stored in same place
- Brand of candles- Different brands manufacture candles in different ways- All are from ROOT candles, all are dipped taper candles
- Time of lighting- If not controlled can decrease the validity of the experiment- I will use all members of my family to light the candles
- Scent- May decrease the validity of the experiment (All are unscented candles)
- Height of candles- Could affect the rate at which they burn- All are 23 inch candles

Materials

- 5 Candles (Red, yellow, blue, green, white)
- 1 Lighter and/or match box
- 1 Carving tool
- 1 Measuring tool marked with cm
- 1 piece of graph paper and 1 pencil
- 1 Timing tool
- 1 Fire Extinguisher



The brand from which I got the candles. They are dipped taper candles.

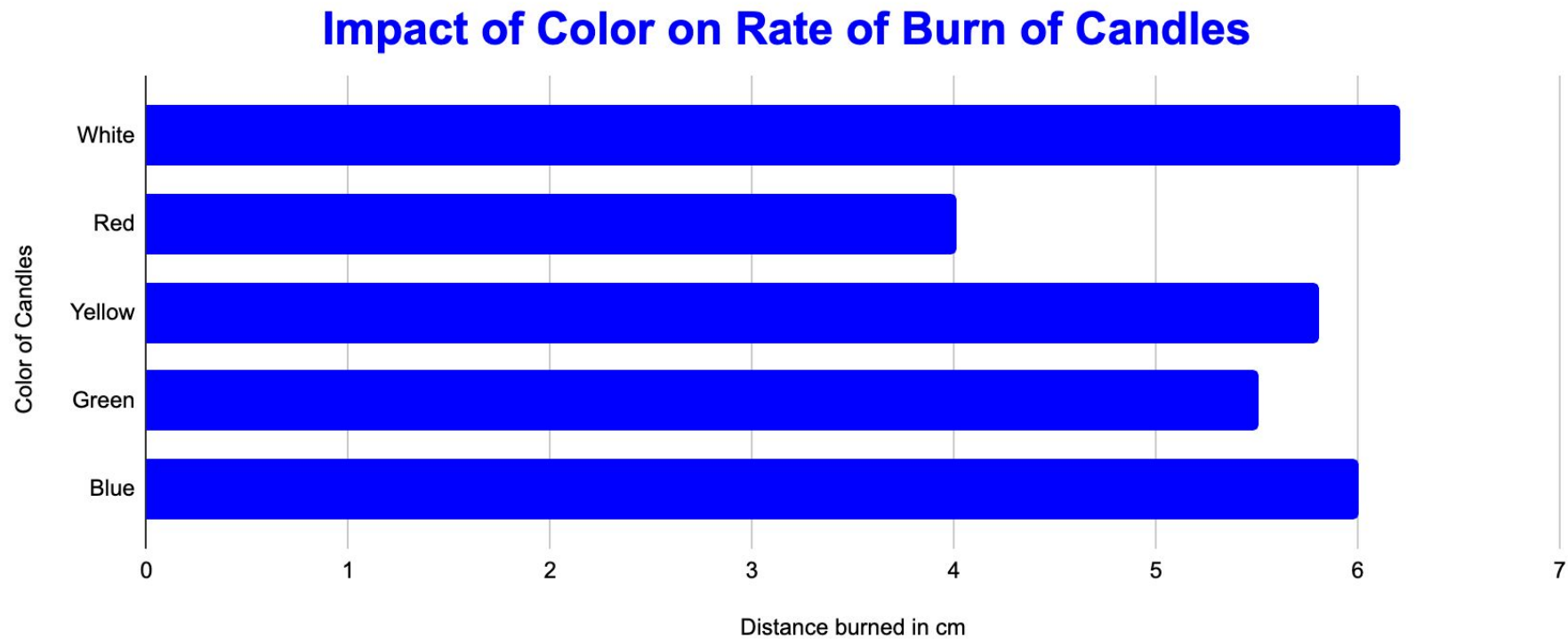


Procedures

1. Gather Materials
2. Mark 1cm marks with a carving tool on the candles, with a ruler beside it to make sure that you get the right measurements, if unable to use the Permanent marker then you can use the carving tool
3. Set candles on an even surface
4. Make sure the candles are at least 12 in from anything flammable
5. Light all candles at the same time
6. Set 1-hour timer
7. After 1 hour, blow out all candles and immediately measure how much they have burnt
8. Use the graph paper and do the calculation of $\text{Speed} = \text{distance}/\text{time}$. If the distance is 6 cm then speed is 6 cm/hr



Data



	White	Red	Yellow	Green	Blue
Distance burned in cm	6.2	4	5.8	5.5	6
Time	1 hr	1 hr	1 hr	1 hr	1 hr
Speed	6.2 cm/h	4cm/h	5.8cm/h	5.5cm/h	6cm/h

Analysis

- My data shows that less pigmented, more pastel colors like blue and yellow burn faster than heavily pigmented colors like red and green. Out of all the colors I had, white burns the fastest burning 6.2 cm in 1 hour.
- White burned the most- 6.2cm
- Blue - 6cm
- Yellow- 5.8cm
- Green- 5.5cm
- Red- 4cm



Summary

- My data suggests that less pigmented colors, like blue and yellow burn faster than colors like green and red with white burning the fastest of them all.
- My prediction was that the color of the candles will make little to no difference. My data shows that the color of the candles did make a difference. The colors did have an impact on the rate at which the candles burned.



Error Analysis

I think my method was very conclusive and gave me valid results. Some improvements I would make would be to bring in some more color to try to understand if the same rules apply. My data suggests that less pigmented colors, like blue and yellow burn faster than colors like green and red with white burning the fastest of them all. I would definitely like to find out more about this topic and see if there were other studies done on this topic.



Candle Burn Rate



The candles when they started burning.



The candles at the 30min mark



The candles after 1hr burning

Future Work

This investigation has made me think of a new question which is: do colors impact memory? This seems interesting for me to do because, I use a lot of color coding in my day to day assignments and would like to know if a specific color helps memory.

