Ghazala Butt
Chemistry Coursework

**Aim: -**
My aim is to investigate the effect of concentration on the rate of reaction. I will be changing the concentration of dilute hydrochloric acid.

**Hypothesis: -**
As the concentration of dilute hydrochloric acid increases, it shall speed up the rate of reaction.

**Apparatus: -**
Magnesium Ribbon,
0.5 mol/dm$^3$, 1.0 mol/dm$^3$, 1.5 mol/dm$^3$, and 2.0 mol/dm$^3$ of dilute hydrochloric acid,
Stopwatch,
Measuring Cylinder,
Thermometer,
Gas Syringe, clamp and stand, and a beaker with a bung,
Conical Flask

**Health and Safety: -**
1. Make sure safety specs are worn all the time.
2. Tie back hair.
3. Wear a lab coat.
4. Any spillages should be cleaned up straight away.

**Method: -**
1. Put on a lab coat, safety specs, and tie back loose hair.
2. Assemble the gas syringe, clamp, and stand, with the beaker and the bung.
3. Measure out 50cm $^3$ of dilute hydrochloric acid of the concentration 0.5mol/dm $^3$ using a measuring cylinder and pour into a conical flask which is attached to the gas syringe.
4. The temperature of the acid should be kept at room temperature throughout the experiment.
5. A 2cm piece of magnesium ribbon should be placed into the conical flask with the 0.5mol/dm $^3$ of dilute hydrochloric acid. Quickly insert the stopper and start the clock at the same time.
6. The volume of gas produced should be measured every 10 seconds.
7. The results should be recorded in the results tables.
8. The above process should be repeated for 1.0mol/dm$^3$, 1.5mol/dm $^3$, and 2.0mol/dm $^3$. Each concentration shall be repeated twice in total to get an average.

Ghazala Butt
Chemistry Coursework

**Conclusion: -**

From my results and from my graph, I can see that my hypothesis was correct. I can see that as the concentration increased, the volume of gas produced was produced faster and more of it was produced.

**Evaluation: -**

If I had waited longer, and continued recording the results until the time was up rather than until nothing could be seen. As when nothing could be seen the experiment could still be happening but very little could have been happening. I should have also have recorded my results every 5 seconds rather than 10 seconds to get more results to analyse. I would make sure I used the all the same apparatus if I had to continue my experiment at a different time because different apparatus have different measurements and that would effect the experiment.