# How the change of temperature affects the rate the jelly dissolves.

My aim if to find how the change in temperature affects the rate the jelly dissolves. I predicted that as the temperature increases the solute will dissolve faster. This is because as the temperature increases the solvents atoms will vibrate and move more rapidly. As the solvents atoms increase their movement, they bump into the solute more often. Whilst they do this they carry bits of the solute away, slowing dissolving the jelly.
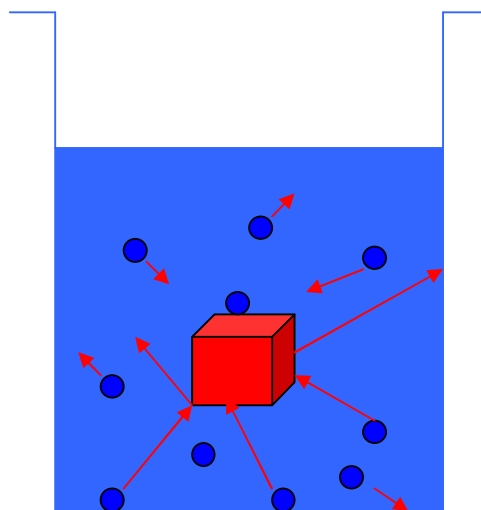
To carry out my investigation, I will measure the time it takes for the jelly to dissolve at different temperatures.

Equipment
- 250ml beaker
- Thermometer
- Bunsen burner
- Gauze
- Tri-stand
- Thermal mat
- Jelly (2cm² x 12)
- Stop watch
- Polystyrene

Method
Collect a 250ml beaker and fill with 150ml of water and heat to the correct temperature. I will start with 80°C followed by 75°C and continue to decrease by 5°C until it reaches 60°C. next place a piece of jelly, 2cm² straight away into the water. I will cover the beaker with a piece of polystyrene. From the moment the jelly enters the water I will start my stopwatch and stop it when I believe the jelly has dissolved. Throughout my experiment I will stir moderately with the thermometer. Additionally at the end of each experiment I will take the finishing temperature. This will allow me to find the average

temperature of the experiment, as room temperature is much lower and will interfere with my experiment. For each experiment I will repeat it three times, which will allow me to find a mean as a result instead of relying one just which could be very inaccurate.

Thermometer

Polystyrene

Jelly

H₂O

+ Stop Watch

HEAT
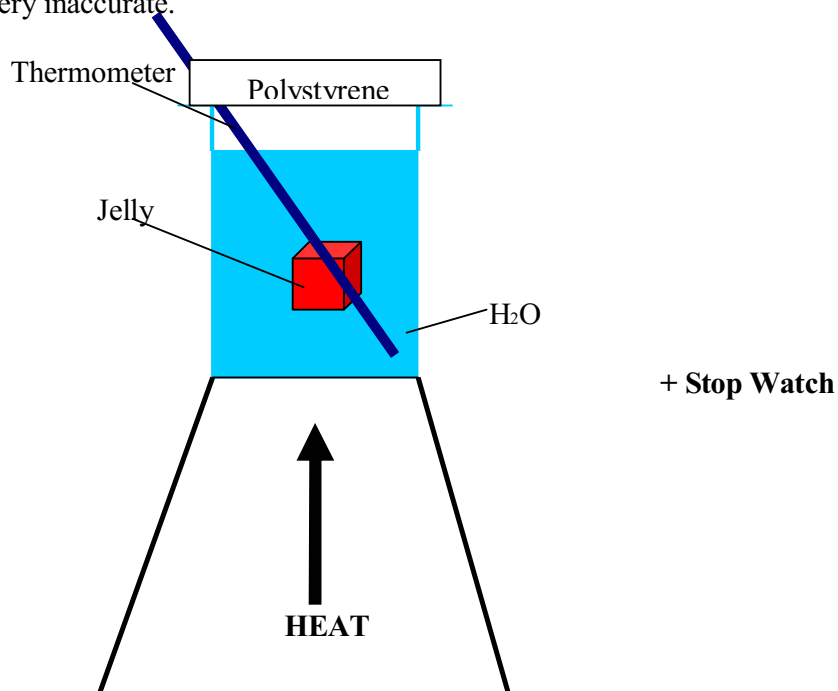
Fair test

So that my experiments are fair I will keep the size and type of the jelly the same and the amount of water I use. This is because the variables could affect the out come of my results.

Results

Beginning temperature	Time1	Time2	Finishing temperature1
85	31.1	30.19	80
80	32.1	34.35	75
75	34.41	39.12	70
70	48.6	48.22	66
65	164.47	63	63
60	73.5	63.72	56

Finishing temperature2	Average temperature1	Average temperature2	Average time1
81	82.5	83	30.7
76	77.5	78	33.2
70	72.5	72.5	36.8
67	68	68.5	48.4
61	64	66	63.7
58	58	59	73.6

Conclusion

My graph shows that the higher the temperature the faster the solute dissolves and proves that my prediction is correct. From looking at my results and especially my graphs and can see that some are inaccurate, these are highlighted. Human error, for example stirring slightly differently or maybe that could have caused these results to be differently. Additionally I had to change some details in my method, as there weren't the resources. I was unable to use polystyrene, which meant that I lost more heat than I could afford to in my investigation. Furthermore I had to use a kettle and mix cold water and hot instead of a Bunsen burner.

If I did my experiment again I would take more to time to get more accurate results. Maybe repeat each one ten times, placing polystyrene over the top to insulate the heat and use a Bunsen burner at get a more accurate temperature to start off my experiments.