

Most longer wick for
more fuel to vaporise



**ASSIGN
BUSTER**

Most of the heat from the spirit burner did not reach the base of the tripod stand itself. This was the main reason for the error. The heat was lost very easily.

A lot of heat was lost in this manner and contributed to a lower than expected temperature change in the water. This was the main source of experimental error. This can be improved by covering the top of the tin can during the reaction, which will reduce a large amount of heat energy lost in the air, thus lowering the temperature of the water.

There were some errors in thermometer readings. The readings on some thermometers varied before started the investigation (they weren't precise). This can be reduced by using more precise measuring tools next time, such as a digital thermometer.

It's better to use digital for more accuracy and to avoid incorrect readings that caused by parallax. Wick, not exactly the same size so the volume of fuel would be different as there is a longer wick for more fuel to vaporise along as it reaches the flash point. The wick was dirty and not easy to light because it was covered in soot from previous experiments. A new one will allow the wick to absorb fuel evenly and burn evenly and be easy to light. The amount of wick on burners should be controlled, the amount of wick on the burner must be measured using a standard ruler and kept constant next time as it affects the amount of alcohol burnt. The direction of the calorimeter had to be altered for each fuel positioning for maximum

benefit because the direction of the flame was different once it was lit but this took time and could have affected the results as fuel burned away.

The general movement of air meant that the flame not constantly on the calorimeter due to air flow which caused heat energy from the flame get lost easily. Discussion There were some anomalies when reading the graph (Figure 2) as two values were almost identical. It could have been due to the amount of wick on the burner as it would not have been exactly the same on each burner as this was difficult to measure. This would have caused differences in the amount of alcohol burnt.

Conclusion The experiments carried out were quite successful and yielded valid results. It has helped determine the relationship between the number of carbon atoms in an alcohol chain and its respective standard enthalpy change of combustion. Thus, the hypothesis has been proved correct. As the number of carbon atoms in an alcohol chain increases, its respective standard change of combustion also increases.

As it can be seen that the values increase as the number of carbon atoms increase.