In this experiment, we are going to demonstrate Boyle's Law which describes the relationship between the pressure and volume of a fixed mass of gas at a fixed temperature.

For this you will need:

An air column with scale, a pressure gauge, and a pump.

You will be taking a number of readings so draw a table to record your results with headings for pressure, measured in Pascals, and length of air column, measured in centimetres.

The length of air column is proportional to the volume.

Record the initial pressure and the initial length of the trapped air column.

Use the pump to increase the pressure on the column of trapped air. Take a number of readings and record your results.

Notice that as the pressure increases the length of the air column decreases.

Once you have a number of results you can plot these on a graph with pressure in pascals along the x-axis and length of air column in centimetres along the y-axis.

The result is a curve with a negative gradient. This shows that as the pressure increases, the length of air column, and therefore the volume, decreases. This is an inverse relationship.

Use the equation, often referred to as Boyle's Law, to show the relationship between pressure and volume of gas at a constant temperature.

This can be written as the equation P1 times V1 equals P2 times V2.