To investigate the effect of changing temperature on the action of the enzyme catalase we need:

Three 50ml measuring cylinders.

A measuring syringe.

Activated yeast solution. This is the source of the enzyme catalase.

Hydrogen peroxide (1 vol). This is the substrate for catalase.

Over time it will break down into water and oxygen.

An ice bath.

A water bath set to 50 degrees Celsius.

Washing up liquid to trap oxygen bubbles given off.

Food colouring to make the solution easier to see.

You will also need a timer.

The experiment will be carried out several times, so the results are recorded in a table.

This should have headings for trial number, volume of oxygen foam produced at zero degrees Celsius, at room temperature and at fifty degrees Celsius.

Let's start the experiment.

Measure 15ml of hydrogen peroxide into the measuring cylinder and put it into the ice bath.

Add a few drops of washing up liquid and food colouring.

Use the syringe to measure 2ml of yeast solution into the cylinder.

With the measuring cylinder still in the ice bath, start the timer.

As the hydrogen peroxide breaks down, the oxygen produced creates foam.

After 2 minutes measure the volume of oxygen foam produced.

Carry out the experiment three times with the samples from the ice bath.

Then repeat the experiment, carrying it out three times with the samples at room temperature and three times with the samples at fifty degrees Celsius.

You can work out average volumes of foam produced by adding the three results for each temperature together and dividing by three.

The results show that enzyme activity is affected by changing temperature.

Activity was reduced at a low temperature, higher at room temperature and there was no activity at fifty degrees.

At this high temperature the enzyme was denatured.