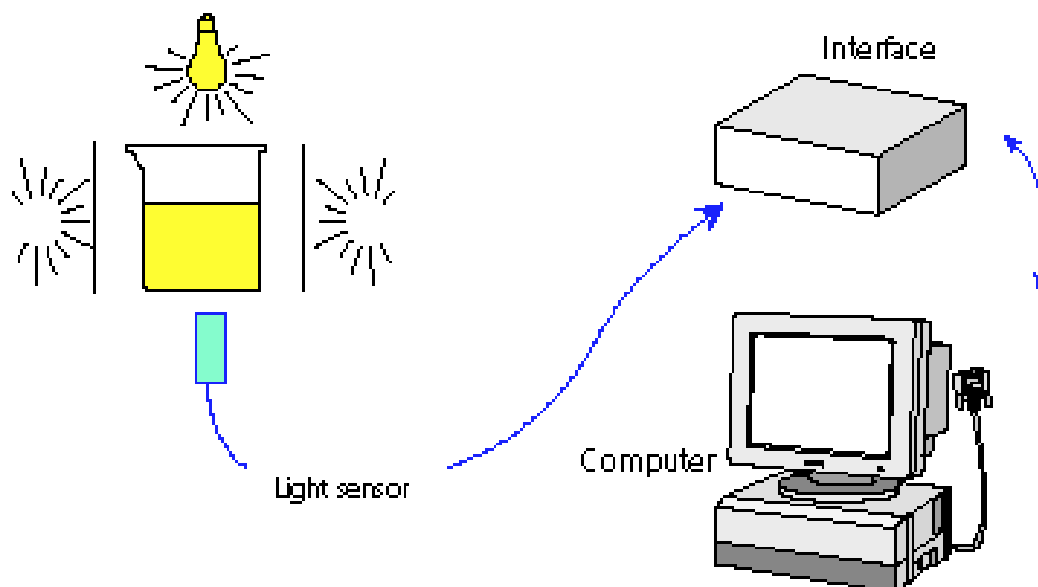


Enzymes: starch and amylase



Amylase catalyses the hydrolysis of starch. Iodine can be used as an indicator to show that the starch has been broken down. A light sensor can be used, like a colorimeter, to monitor this change.

This experiment aims to show the effect of different temperatures on the action of amylase.

Apparatus

Fresh amylase and starch solutions, iodine, distilled water, a sheet of black paper, light sensor.

Setting up

Set up the light sensor and beaker. Add 20cm^3 starch solution and 2-3 drops of iodine. (Or: use a smaller volume in a plastic cuvette - use a discarded plastic pH indicator paper box).

Use black paper to shield the beaker from changes in the light level. Try not to completely cover the chemicals - it helps if you can see the colour change.

Connect the light sensor to a socket on the interface.

Start the computer recording and look for a trace on screen. If the Light sensor is adjustable, change its range to get the trace on screen. Some systems recognize the sensors you attach automatically, in others you do this yourself.

Recording the data

Add 5cm^3 amylase to the beaker.

Record for 15 minutes.

When the reaction is complete replace the beaker and solutions. Make a new recording, but at a different temperature.

Using the results

What happens to the appearance of the solution during the reaction?

What does the graph tell you about the progress of the reaction?

When was the reaction working at its fastest?

What condition did you change? How has this affected the graph?

Calculate the average gradient of the graphs. Which part of the graph should you use? What does this tell you?

Save your data on disk. Print the graph.

