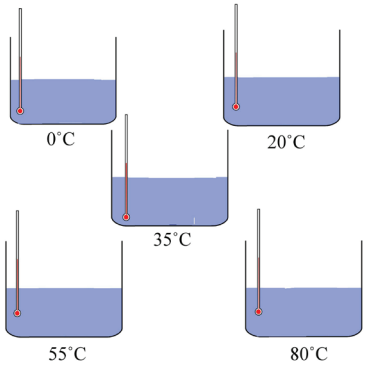
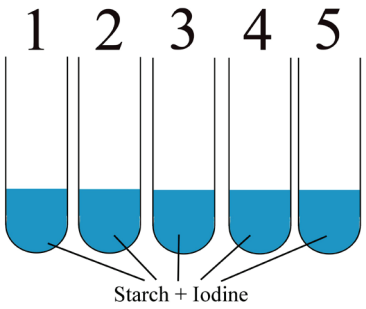
4.4 (a) To investigate the effect of temperature on amylase activity

1



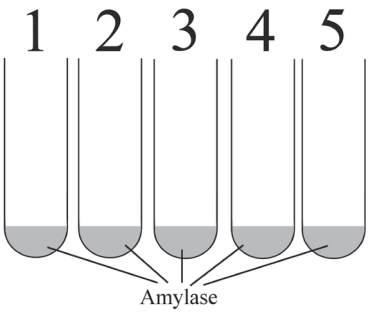
Set up five water baths at different temperatures – 0°C, 20°C, 35°C, 55°C, 80°C.

2



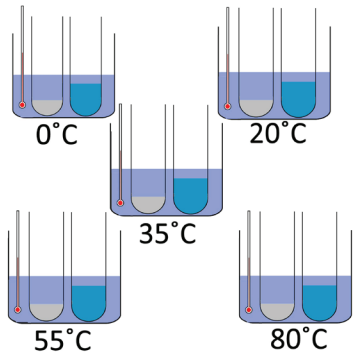
Into each of five boiling tubes put 5ml starch solution and 3 drops iodine solution.

3



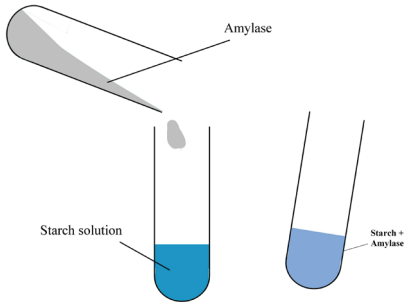
Into each of five more boiling tubes put 2 ml amylase solution.

4



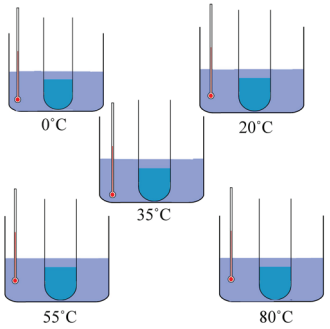
Place a pair of boiling tubes into each water bath and leave for 5 minutes.

5



Pour the amylase into the tube of starch solution and gently shake. Repeat for each temperature.

6



Replace the tubes in the water bath and measure the time taken for the blue/black colour to disappear.

Always remember – Leave time to tidy up

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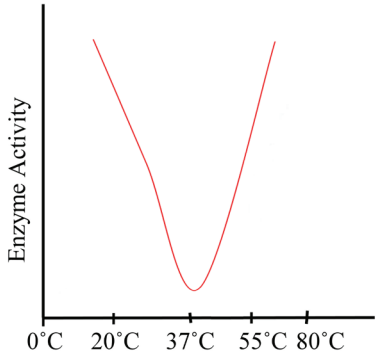
7



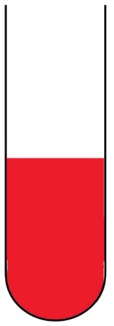
Graph your results

8

Prepare as for steps 1 and 2 previously

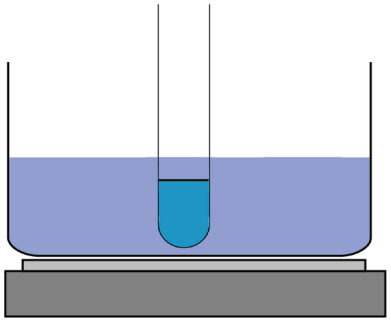
Test for sugar: add 1ml Benedict's solution to each boiling tube and heat for 5 minutes.

9



A brick red colour indicates a reducing sugar is present.

10



Repeat the whole experiment with boiled amylase as a control.

11

The enzyme works best at 37^{O}C. The blue / black colour faded and Benedict's resulted in a positive test.

Expected result

Table of Results

Temperature (^{O}C)					
Time taken for solution to turn colourless					
Test for sugar					

Always remember – Leave time to tidy up

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