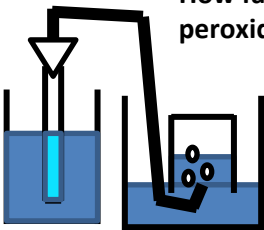


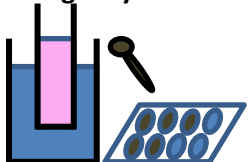
Temperature and enzyme activity

How fast a product appears- the breakdown of hydrogen peroxide using catalase $2\text{H}_2\text{O}_2 \rightarrow 2\text{H}_2\text{O} + \text{O}_2$



1. Put hydrogen peroxide solution with a source of catalase (e.g. a potato) in a water bath at a constant temp
2. Using upward delivery, measure amount of oxygen produced per minute
3. Adjust temp of water bath and repeat

How fast a substrate disappears- breakdown of starch to maltose using amylase



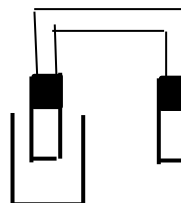
1. Put starch solution containing amylase in a test tube in a water bath
2. Time how long it takes starch to disappear by regularly sampling starch solution
3. Iodine solution will stop turning blue/black when starch is no longer present
4. Adjust temp of water bath and repeat

Testing a leaf for starch

1. Kill leaf by dunking in boiling water to stop any chemical reactions happening
2. Heat in water bath with ethanol to get rid of chlorophyll
3. Rinse leaf in cold water
4. Add iodine solution
5. If starch is present leaf will turn blue/black. Starch will be present if leaf is photosynthesising

Respiration rate of yeast with enzymes

Measure rate of CO_2 production when changing variables such as temperature, concentration of sugar solution...



1. Mix together sugar, yeast and distilled water
2. Attach bung with a tube leading to second test tube of water
3. Count how many bubbles are produced in a given period of time
4. Repeat with water bath at different temperatures (or change another variable)

Respiration is controlled by enzymes so as temp increases, rate of respiration increases

Preview from Notesale.co.uk
Page 11 of 11

Photosynthesis experiments

Chlorophyll, CO_2 and light are all needed for photosynthesis

The light test

1. Put a plant in a cupboard to grow without light
2. Take leaf from plant and test for starch
3. Will no change colour as no starch can be made as light is needed for photosynthesis



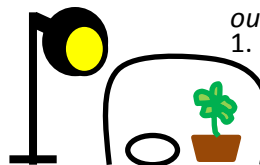
The chlorophyll test

Use variegated leaves (only the green parts contain chlorophyll)

1. Expose the leaf to sunlight
2. Test for starch using iodine solution
3. Only the green bit that contained chlorophyll will turn blue/black

The carbon dioxide test

Soda lime absorbs CO_2 out of the air in the jar



1. Leave plant in sealed bell jar with soda lime and sunlight
2. Test plant for starch
3. Will not change colour as CO_2 is needed for photosynthesis