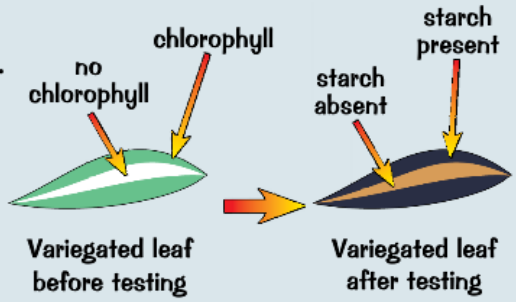
- Rinse the leaf in cold water and add a few drops of iodine solution to it. If starch is present, it will turn blue-black.

Chlorophyll

You can show that chlorophyll is needed for photosynthesis using variegated (green and white) leaves. Only the green parts of the leaf contain chlorophyll.

1) Take a variegated leaf from a plant that's been exposed to light for a bit. Make sure you record which bits are green and which bits aren't.
2) Test the leaf for starch as above — you'll see that only the bits that were green turn blue-black.
3) This suggests that only the parts of the leaf that contained chlorophyll are able to photosynthesise and produce starch.

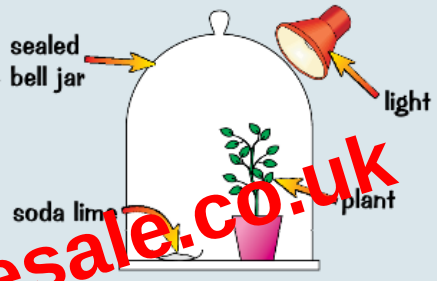


The white parts of the leaf go brown because the brown iodine solution stains them.

CO_2

e.g. the temperature, are controlled.

1) You can show that CO_2 is needed for photosynthesis with the apparatus shown on the right.
2) The soda lime will absorb CO_2 out of the air in the jar.
3) If you leave the plant in the jar for a while and then test a leaf for starch, it won't turn blue-black.
4) This shows that no starch has been made in the leaf, which means that CO_2 is needed for photosynthesis.

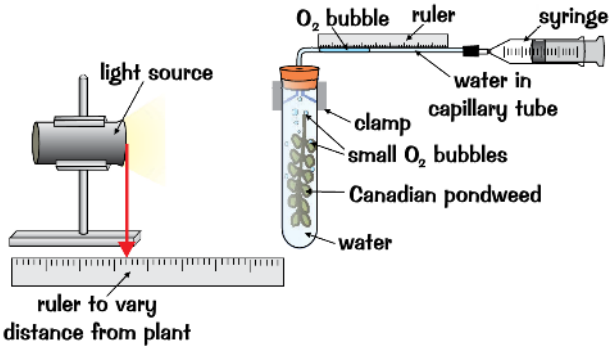


Light:

- To show that light is needed for photosynthesis you need a plant that's been grown without any light.
- Cut a leaf from the plant and test it for starch.

Oxygen:

- Canadian Pondweed.
- A source of white light is placed at a specific distance from the pondweed.
- The pondweed is left to photosynthesise for a set amount of time. As it photosynthesises, the oxygen released will collect in the capillary tube.



- At the end of the experiment, the syringe is used to draw the gas bubble alongside a ruler and the length of the gas bubble is measured.
- Temperature and time need to be controlled.