

Investigation 3 Sun loving plants

All green plants need the sun's energy to produce food. This process is called photosynthesis. Plants absorb CO_2 (from the air) and sunlight through their leaves and take in water through their roots to produce food and O_2 . This process is essential for all living things as it supplies the earth with O_2 and gets rid of harmful CO_2 .

Here's how to prove that plants need light to photosynthesise.

YOU WILL NEED Two plants • Two shoe boxes (or similar) •
Cling film • Two petri dishes with limewater •

- 1 Place both plants in a dark room overnight. This prevents the plants from making food and causes them to use up whatever food they have stored in their leaves.
- 2 Cut the lid of one of the shoe boxes so that it has a small opening, approximately 6cm x 4cm, to allow the light in. Cover the opening with cling film to prevent the air from getting in.
- 3 Place one plant inside this box.
- 4 Place the other plant inside the shoe box with no opening.
- 5 Place a dish containing an equal amount of concentrated limewater in each box (limewater changes to a milky colour in the presence of CO_2).
- 6 Place both plants on a sunny windowsill.
- 7 Leave the plants for one day.
- 8 Return to the plants and examine the colour of the limewater in both shoe boxes.
- 9 Remove a leaf from each plant and test them for the presence of starch.

Consider this

How can you find out if a plant has produced food?

Which dish of limewater has turned the whitest?

Which shoe box could support animal life and why?

Plant B was photosynthesising and producing food in its leaves. How do we know this?



Tell Me More!

The plants in the investigation needed light to photosynthesise and produce food. By examining the colour of the limewater we could see that plant A was not able to photosynthesise because it had no light and, as a result, there was a higher build up of CO_2 in its environment.

When we burn fossil fuels (oil, coal and gas) CO_2 is released into our atmosphere. Due to the increasing demand for fossil fuels, the production of CO_2 has greatly increased during the last hundred years.

To reduce the amount of CO_2 in our atmosphere, we need green plants to absorb CO_2 during photosynthesis. But the problem is that there are not enough green plants to deal with the amount of CO_2 produced. This increase in CO_2 is adding to the greenhouse effect and warming the earth's atmosphere.