



## Photosynthesis - How does a tree eat?

### Fact

- Trees use a process called Photosynthesis (Photo-sin-thi-sis) to make their own food.
- A tree's leaves are like small factories and different parts of the leaves have different jobs. The veins in a leaf are like tiny tubes that carry water to the leaf and then carry food from the leaf to the rest of the plant.
- On the underside of the leaf are tiny little holes called stomata, these work like the tree's nostrils letting it breathe. Leaves breathe in Carbon Dioxide (CO<sub>2</sub>) and breathe out Oxygen.
- Leaves also contain a green pigment called chlorophyll (this gives the leaf its colour).
- The leaves use the CO<sub>2</sub>, the energy of the sun, the chlorophyll and water to make oxygen and sugar that it uses as food. This process is called Photosynthesis.

### Do you know

- Water is gathered by the roots of a tree.
- New Zealand's oldest living tree is over 1250 years old and is in the Waipoua Forest in Northland.
- Trees don't use oxygen so they "breathe" it out through the tiny stomata on the underside of their leaves.

### Experiments you can do

Plant pigments. Ask your science teacher at school to help you with this experiment.

#### What you need:

Soft green leaves

A drinking glass

A tablespoon

Acetone (nail polish remover)

A Pencil

Sticky tape

A narrow strip of blotting paper

Pestle and mortar

#### What you do:

Put your leaves in the mortar and add table spoon of acetone. Grind the ingredients with the pestle until they become semi-liquid. Pour the mixture into the glass. Tape a strip of blotting paper around the pencil so that it hangs down like a long tail and put the pencil over the glass so that the blotting paper hangs in the acetone mixture. Leave it for there for about one hour.

What happened to the blotting paper? The pigment (green colour) of the leaves will have been drawn up the paper with the acetone. Try this experiment with different coloured leaves and see what happens.

### **Other Investigations**

Find two weeds in your garden that are the same type and about the same size. Use a tape measure to measure the height of each and record the heights on a piece of paper. Put the date on the page as well. Cover one of the weeds with a cardboard box or plastic container that you can't see through. Leave the container there for a few days then compare the weeds. Is there any difference? Record the differences on the paper. Check again at the end of the week.

What has happened to the weed that was covered by the box or container? Why did it happen? What was the box or container stopping from reaching the weed?

### **Jokes**

Person one: Repeat after me, yellow

Person two: yellow

Person one: green

Person two: green

Person one: yellow

Person two: yellow

Person one: green

Person two: green

Person one: what do you get if you mix them together?

If the person says blue they're wrong – they should have repeated “what do you get if you mix them together?”