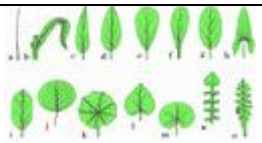
PLANTS (teacher's notes)

LEAVES

Activity 1: Let's think about leaves!

B) If there is no chance of bringing lots of different leaves to the classroom you can use the images below:






You can also visit the website below and you will find lots of different leaves!

http://www.discoverscience.rutgers.edu/extras/trees/treephotos.html

They can be:

- Big (like a gunnera leaf) or small.
- Green, red, orange, yellow… Pigments give different colours to the leaves, for example, Chlorophyll gives green and carotene red and orange.
- The leaf margins can have indentations (serrated leaf), no indentations (entire leaf), lobes (lobed leaf).
- Simple leaves (made up of a single leaf blade) and compound leaves (made up of leaf blades).

		
A gunnera leaf	A maple leaf (a simple leaf)	A horse chestnut leaf (a compound leaf)

Activity 2: Let's look for the parts of a leaf!

B and C) Ask questions that allow the pupils to think about these leaf parts.

- The stalk and veins: They contain the vascular tissue that transports the water through some tubes and the food through other tubes.

- The epidermis: This protects the leaf from gaining or losing too much water because it's waxy.
- The palisade layer: This is the layer that is found just under the upper side epidermis of the leaf and it contains the chloroplasts which contain the chlorophyll. Chlorophyll is the pigment that captures the light.
- The spongy layer: This is the layer that is found just under the palisade layer of the leaf and it's made of spongy cells and air.
- Stoma (singular word) or stomata (plural word): They are the leaf pores that are frequently found on the underside epidermis of the leaf. These pores let the air and water go in and out of the leaf.

C) At the address below you can find an excellent cross section of a leaf
http://www.usborne-quicklinks.com/uk/uk_entity_pages/uk_download_image.asp?lib=683&linkid=430185

Activity 3: Do leaves need sunlight?

E) Under the upper epidermis there are palisade cells that contain chloroplasts that move depending on how strong the sunlight is. Chloroplasts contain chlorophyll, a green pigment, which absorbs the sunlight energy.
Plants need sunlight, if not the leaf dies. If we let the leaf absorb the sunlight again it will recover its green colour and it will be healthy.

		
Trapped leaf.	The trapped leaf after a week.	The trapped leaf after one week without the black card.

Activity 4: Most plants, unlike animals, produce their own food.

When you discuss with the whole group they have to cross out the wrong answers and they have the last 3 spaces just in case they need them to draw the correct things.

- Plants that don't produce their own food are: meat eaters, parasites and saprotrophs (they feed on dead matter such as fungi).
- Make the pupils realize that plants cannot move, so the things they need to produce food have to be near!!
- Air is about 78 % nitrogen, about 21 % oxygen, less than 1 % carbon dioxide and other gases.
- At night plants do not photosynthesize and they need oxygen from the air.

ANSWER: To prepare their food plants need sunlight, water and air (carbon dioxide CO_2).

Activity 5: Photosynthesis!