



Primary
Subject specific

Leaf slides

Age: 8-11

Subject: Science, Art

Topic: Photosynthesis and
leaf adaptations



Previous learning required

- An understanding of the parts of a plant (e.g. leaf, stem, trunk, flower, seed).
- Knowledge that plants are autotrophs which make their food via photosynthesis.
- An understanding of the terms 'deciduous' and 'evergreen' and awareness of the seasonal adaptations of these two types of plants i.e. deciduous plants lose their leaves in the winter.

Learning outcomes

- To become aware of the different features inside a leaf e.g. veins, cells.
- To acknowledge the differences between types of leaves, e.g. deciduous and evergreen and why plants are adapted in this way.
- To understand how a plant makes its own energy via the process of photosynthesis.

Equipment

- Pieces of card (A4 works well).
- A scalpel.
- A cutting board.
- A selection of leaves.

Activity

Note: adults may want to complete steps 1 and 2 in advance depending on pupil's ability using scalpels.

1. Fold your pieces of card in half.
2. Using a scalpel and cutting board, cut a 3cm x 3cm square in the centre of the folded card, cutting through 2 layers to make a hole which you can see all the way through.
3. Invite pupils to find a leaf (the flatter the better).
Hint: this activity works well in autumn alongside the 'Sensory Inspiration - Rainbow Chips' Activity. You may also want to ensure that pupils have access to both deciduous and evergreen leaves.
4. Place the leaf inside the folded piece of card.
5. Ask pupils to stand in a circle, facing outwards.
6. Hold their leaf slides up to the sky to allow light to shine through, highlighting the structures inside the leaf.
7. Like an old-fashioned slide machine, each pupil passes their leaf slide to the person on their left when you say 'click'.
8. Repeat step 7 until each leaf slide has been returned to the person who made them.



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Questions to help generate curiosity:

- Were there any leaves that we couldn't see through? Teaching point: waxy-coated evergreen plants have leaves that are more opaque than deciduous leaves and this adaptation helps to protect their leaves during the winter frosts.
- How do plants make energy? Teaching point: if pupils are not yet secure in their understanding of photosynthesis, facilitate discussion relating leaves to solar panels which are able to convert light energy into food. "When you look at a leaf held up to the light you can see its veins. Like the veins in our bodies which transport our blood, the leaf's veins transport food and water around the plant."
- Why are leaves usually green? Teaching point: a green pigment called chlorophyll makes the leaves green and is essential for absorbing light for photosynthesis.

Check for understanding

1. How do plants make their food?
2. How do plants change during autumn and winter?

What is the right answer?

1. Photosynthesis using chlorophyll in their leaves.
2. Delicate deciduous leaves change colour in autumn and are shed in winter whereas waxy/shiny evergreen leaves can survive hard frosts and snow.



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