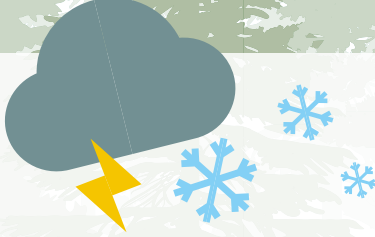




## Nature's fireworks

 Winter conditions can be a problem for trees. Stormy winds, ice and snow can all damage trees, and if the ground freezes tree roots can't take up water from the soil! By dropping their leaves, deciduous trees are better able to survive the winter.

**DID YOU KNOW?**  
An oak tree drops around 250,000 leaves in autumn.

All leaves contain a green pigment called chlorophyll. This allows the leaves to absorb sunlight that the tree needs for growth. In autumn, deciduous trees break down the chlorophyll, allowing other leaf pigments to be seen.

A whole leaf rarely changes colour in one go. They often reveal their hidden pigments in spotty or blotchy patterns. For some leaves you can see the changing colour following the veins.

**Can you?**  
Create a leaf snake through the trees by stitching leaves together. Overlap two leaves and use leaf stalks or pine needles to pin them together.



It is important that trees drop their leaves at the right time. If trees drop their leaves too early they lose good growing time and if too late they could be damaged by winter weather. The key trigger for leaf fall is the reducing number of daylight hours.

**REMEMBER!**  
If something is attached to a tree, the tree still needs it!

## Leaf chromatography

**Chromatography involves separating the different parts of a liquid. You need a material, such as filter paper, that will slowly absorb the liquid. Each substance will form a separate band on the paper.**

With leaf chromatography you are separating out the different pigments found in a leaf. It helps you to see hidden colours. If you do this when the leaves are still green, you can tell what colour they will turn in autumn!

### What to do

- 1 Choose a coloured leaf of your choice.**
- 2 Using scissors, cut the leaf into little pieces.**
- 3 Place the leaf pieces into a jar and add a little water.**
- 4 Keep mashing up the leaf in the water. The leaf pigments will change the colour of your water.**
- 5 Cut a coffee filter paper, paper towel or kitchen paper into strips and dip it into the liquid.**



**Place the filter paper strip into the jar. Leave for a few hours or overnight. You may see bands of green chlorophyll, red anthocyanins, brown tannins, yellow and orange carotenes.**

### Colour spotter

How many of these colours can you spot in the arboretum this autumn? Can you come up with some interesting names for the colours you see?

