Learning Objective: To observe how water is transported to all the parts of a plant

Introduction

Water is essential for plants. Plants use their roots to suck up water from the soil. The water carries nutrients (food) to all the parts of the plant. Even without the roots, plants are still able to suck up water to stop its leaves from wilting and flowers from drooping. Complete this experiment to find evidence of how water travels through plants.

Things you will need:

This experiment aims to make use of things you have in and around your house, providing options in case you have trouble finding something:

- Food colouring - if you haven’t got any, take the cartridge from an old felt tip pen
- Something to use as a small vase: a jar, cup or glass
- Scissors
- A plant cutting - a celery stalk, a lettuce leaf, a cut rose, a small cutting from the garden

Instructions

1. Prepare the vase
   Put a couple of centimetres of water into your vase. Add several drops of food colouring OR drop in the felt tip cartridge (cutting it in pieces works well but can be messy).

2. Prepare the plant
   Cut the stem of the plant with sharp scissors so it has a fresh, clean cut. Make sure the stem is long enough to reach the water and the vase is tall enough to support your cutting.

3. Conduct the test
   Place the cutting into the vase and leave for several hours. Different plants take up water at different rates so keep checking it carefully for signs that the coloured water has travelled through the plant.

Top tip: It may not work with all cuttings and sometimes the evidence can be hard to spot. Hold your cutting up to a window. Light shining through the leaf can make it easier to see.
Experiment
Try different kinds of leaves and flowers or try adding different colours to the water. Some will work better than others. Here are some that seemed to work quite well.

**Lettuce in red water**
You can see the path the coloured water took as it travelled through the leaves.

**A plain white rose before it was dyed.**

**A white rose in red water**
Can you see how it travelled through the petals?

**Leaves from a garden shrub in red water**
The veins of the leaf have been dyed red.

**A white rose in blue water**
Blue shows up more at the flower edges.