

STEM Outreach

Teacher's Resource-Coloured Flowers



Curriculum Link: How do plants work?

Year Group: KS1

Kit List:

- **White carnations or irises (minimum 2)**
- **Small yoghurt pots or similar containers (minimum 3)**
- **Food colouring and inks**



This demonstration will show how vital the structure of the plant is to how it functions and can give children a visual idea of the inner workings of a plant. If you place the stem of a carnation in coloured water, the petals of the flower will slowly turn that colour.

Instructions

- Ensure that two of the yoghurt pots/cups can stand closely together– you may need to cut off their rims.
- Fill all of the yoghurt pots with water. To one of the pots, add a few teaspoons of ink and a few drops of food colouring to make up a solution of one colour. To the other, do the same but with a different colour ink and food colouring. For the third, leave it uncoloured– this will be your control pot.

Note: The mixture of ink and food colouring produces a much better effect than the ink or food colouring alone. You may need to test the quantities of dyes and inks used first as the effect will vary depending on the dyes used.

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- Shorten the stem of each flower and place one carnation into the pot of uncoloured water– this will be used to show what happens when no colour is added to the water for comparison.
- For the other carnation, cut the stem in half and place each half of the stem into a different yoghurt pot of coloured water (you may have to find something to support the flower upright).
- After a few hours, the colours will have spread to different halves of the carnation, showing the path that the coloured water takes when travelling up the tiny tubes. The flowers can be left for longer to observe the effect of time on the colour of the petals.
- Compare the newly coloured carnation with the carnation in the control pot, why is this the result of the experiment?

The Science

You should observe that the control flower is still the same colour while the other flower has changed so that it is split into halves of the different colours. This demonstrates that the tiny capillary tubes (the tubes that 'suck' up the water) run throughout the plant's stem all the way to the petals and once the water enters the plant's stem, it will not mix again before it is delivered to specific parts of the flower. Through each colour only spreading to one half of the plant, it shows that each tiny capillary only delivers water to one certain part of the plant, showing how the flower and all plants absorb nutrients and water, usually from the soil, and delivers these to the petals and leaves for photosynthesis.

This experiment can be performed with multiple flowers at once and a range of different colour inks and dyes. You could test to see which colour is absorbed the fastest, or whether this works with another coloured liquid like juice.