

The seed and germination

➔ Teacher Guidance

Activity 2: What's in a seed? – taking a seed apart

This is a more traditional 'dissection' of a seed and gives an opportunity for recording observations, in writing and through drawings. Before starting this activity with children, teachers may wish to read the notes given on page 44, 'The seed and its germination'.

Resources and preparation

For each child, you will need the following:

- two large seeds, such as beans or peas. Soak one seed in water for about twelve hours (but leave longer, say up to two days, if possible).
- paper towel or similar (to place the seeds on)
- a magnifying glass (can be shared). Alternatively, if available, a digital microscope could be used here, or a webcam so that the image is projected onto a whiteboard.



Seeds are sometimes dusted with a fungicide so you should make sure that the children do not put their fingers in their mouth and that they wash their hands at the end of the activity.

The activity

- Give each child one dry and one soaked seed. Discuss the similarities and differences that they observe and ask them why they think one seed is larger than the other.
 - Usually they notice that the larger seed feels damp. You can then explain that it was soaked in water and point out that there is a small hole close to the end of the scar.
- Let the children gently squeeze the seed. They may see bubbles emerging from this hole. Sometimes this can be observed more easily with a magnifying glass.
- Ask children to peel off the outer layer on the soaked seed and do this gently. Discuss what this layer could be and why the seed has it.
 - Explain that this is the seed coat and that it protects the seed.
- Next ask children to open the seed carefully. They should notice that, if using a bean or a pea, it easily splits into two halves, and that the young root and young shoot are lying between the seed leaves.
 - These two halves are the seed leaves or cotyledons. Discuss why they think the seed leaves are large in comparison to the young shoot and root. Explain that the seed leaves give food to the young shoot and root as they start to grow. You can also point out that at first the young root grows more quickly than the shoot. This means that it can anchor the plant and take up water from the soil.

The Pupil Sheet on page 18 gives suggestions for the children to complete, but some teachers may wish to devise their own worksheet. A Word file is provided on the SAPS website for you to download and amend to suit your class.

Curriculum links

National Curriculum (Sc2)	KS2: 3d
QCA guidelines – Scheme of work	Unit 5B
Scottish ISE 5-14 framework/attainment targets	LT-D2.5

Taking a seed apart

1. Draw the soaked bean

2. Split your bean open and draw what you can see

Make your drawings fill the boxes. Label your drawing using these words to help you.

seed coat

seed leaf

young root

young shoot

How might the water get into the seed? _____

Why does the seed have a coat? _____

Why are the seed leaves so big? _____
