

only one grow to be so tall and strong?

- Identify with the children what seeds need to grow. They will probably come up with **soil** because it gives food or **nutrients**, water and light. Explain that all plants need food, water and light to stay alive.
- Set up as fair a test as you can to try out the children's ideas. Plant five beans in the grow bag in front of the window, explaining that the beans will all have food from the soil, light from the window and will be watered every day.
- Take a digital photograph and start off the picture diary of the beans' growth.
- Plant another bean in cotton wool and place it by the side of those in the grow bag, explaining that you are trying to grow this one without soil. Plant another in a pot and put this one by the grow bag, explaining that this one will not have water once it starts to grow. Plant another in a pot and put this in a dark place, explaining that this one will be watered but will not get any light.
- Take a photo of each bean to start its picture diary and set up a tally chart for each of these beans.

Obtaining evidence

- Look after the beans in the grow bag, cotton wool and dark place.
- Stop watering the bean, in the pot next to the grow bag, as soon as it starts to shoot.
- Every day, check each bean with the children, and make a tally on each chart to record the number of days it takes for each stage to be reached.
- Take a photo of each bean as soon as it shoots, labelling the picture with the correct number of days and adding it to the bean diary.
- Take pictures every day and note when the **leaves** and **flowers** appear. You may need to transplant the beans outside before the flowers appear.
- Encourage the children to recognise and name each part of the plant as it grows and label these on the photos.

Drawing together

- A week after the beans have started to

grow **stems**, or in time to prevent the bean from dying, look at the bean that has not been watered and note that it has started to die. *What can we deduce from this?* (That plants need water to grow.) Give the bean plant a good drink to revive it if you can.

- Next, look at the bean in the dark place and compare it with those which have had light. You may need to do this over a few days, but as soon as the children notice the differences with the ones that have had light, take a photo for the bean diary and put it in the light so it can also revive itself. Ask the children, *Why does the plant grow so long and thin? What is it looking for?* Explain that plants need light to help them make a special food which helps them grow into healthy plants.
- Next, look at the one grown on cotton wool. *Has this bean managed to grow? Is it as strong and tall as those in the grow bag?*
- Add the children's observations and comments to the bean diaries.

Support

Talk to the children, in a small group, asking them direct questions that require them to look at specific parts of the plant.

Extension

Ask some children to use books and Internet websites to find out why plants need light to grow.

Scientific language

stem – the main part of the plant above the ground that supports the leaf, flower and fruit. Another name is 'stalk'.

leaf – part of the plant that grows from the side of the stem, branch or root.

flower – part of the plant from which fruit or seeds are later developed.

soil – earth in which plants grow.

nutrients – sources of nourishment.