

Key Facts

Plant:

One of a large group of living things that use sunlight to make their own food. Most **plants** have leaves, stems, roots and either flowers or cones.

Growing plants need water, light and a suitable temperature. The seed provides a store of food for the growing plant until the first leaves are above the soil and it can start to make its own food by photosynthesis.

Germination:

Germination is the process by which an organism grows from a seed or similar structure. Seed germination happens in a predictable sequences. There are two types of germination that occur epigeal and hypogeal. In epigeal germination the roots are pushed above ground and the seed leaves emerge from them, followed later by the first true leaves. This contrasts with hypogeal germination where the roots stay below ground and the first leaves emerge from the stem.

Children will observe that seeds do not all germinate in exactly the same way, but at this stage in their learning focus only on the common features of a radicle emerging first and growing into root, followed by the shoot which grows the first leaves.



Science Year 2 Autumn 1 The Apprentice Gardener



Vocabulary

Word	Definition
Bulb	A dormant stage of a plant that is formed underground and consists of a very short stem with one or more flower buds surrounded by special thick leaves.
Gardener	A person who works in a garden.
Leaves	Leaves produce food for the plant through a process called photosynthesis.
Root	A root is a part of a plant that is usually hidden underground. They hold the plant in the ground and keep it upright.
Seedling	A young plant grown from seed.
Seeds	The small part of a flowering plant that grows into a new plant. We planted seeds in the garden.
Shoot	The new growth from seed germination that grows upward is a shoot where leaves will develop.
Unhealthy	When a plant is suffering from being malnourished, under watered or not
Wilting	To lose freshness and become limp.

Common misconceptions:

- Children may confuse the requirements of seeds for germination with those of mature plants for growth.
- Children may not recognise that plants that grow tall when deprived of light, are not healthy.

Knowledge and Understanding:

Children will learn:

- Seeds do not need soil for germination to occur; any medium that holds water is suitable, although as the seedlings develop they need anchorage for their developing roots.
- A bulb is an underground structure produced by perennial plants, which becomes dormant in the soil after the plant has flowered.
- A bulb is similar to a seed because it needs water to begin to grow, and it grows roots and then a shoot. A bulb is different from a seed because it can be left in the ground and the same plant will grow back again the following year
- Roots and shoots are sensitive to gravity so, no matter what orientation the seed is planted in, the root always grows downwards and the shoot upwards.

Key skills and concepts:

Children will be able to:

- To observe closely to find **similarities and differences** of different plants, seeds and bulbs.
- To **record data into a table** to help **group and classify**. Children will be **observing** changes and **patterns** within plant growth.
- To decide **what to do with more independence** in order to answer questions.
- To **make observations over time** to help answer questions. How long does it take a plant to grow if planted without soil, at different levels of the soil.
- Provide an opportunity for children to **apply** what they have learned in classroom investigations in real context.
- They are also introduced to growing plants from bulbs and from seeds, learning the **sequence** of germination, and **comparing and contrasting** the requirements of germinating seeds with those of mature plants to maintain healthy growth.

Key Questions

What do gardeners need to know?

How can we care for our plants?

What happens when a seed germinates?

What do plants need to grow and be healthy?

