



Holly Park Learning Organiser

Year 3 - Science

Plants - Does the number of seeds within one plant pot affect the growth of the



Prior Knowledge:

Which things are living and which are not. Observe and describe how seeds and bulbs grow into mature plants.

Essential Knowledge:

Children explore the different parts of a plant and their functions. Children apply their knowledge of plant parts and complete a plant dissection. When dissecting, children should carefully cut and observe the different parts of a plant including the roots, leaves, stem and flower. Children plan an experiment to test whether the number of seeds in one plant pot affects the growth of the plants. , Children explore the stem and water transportation. children learn about the reproductive parts in flowering plants. They learn that the “stamen” is the male reproductive parts, and the “pistil” is the female reproductive parts.

Key Questions:

- What parts of a plant can you identify? • Where are the flowers found? • What is the function of the flowers/leaves/roots/stem? • What would happen to the plant if the roots were damaged? • What would happen if the plant had no leaves? • What would happen if a flowering plant had no flowers?
- Where are the leaves? • Where are the flowers? • What is the function of the roots/ stem? • What do you notice about all of the roots/stems/leaves/ f lowers? • What does “dissection” mean?
- Where is the stem on this plant? • Which parts of the plant receive water from the stem? • What would happen to a plant if its stem was damaged? • How does water get to the leaves? • What is the function of the soil? • How are the roots and stem similar or different?
- What is a seed? • What is a seedling? • What is the difference between a seed and a seedling? • Where is the seed coating? • What is germination? • What are the best conditions for seeds to grow in? • What effect would cold conditions have on seed germination? • How long does it take for a seed to germinate?
- What are the male parts of a plant called? • What are the female parts of a plant called? • Where are the reproductive parts of a flowering plant?
- What is pollen? • Which part of a plant produces pollen? • What is pollination? • Which parts of a plant are involved in pollination? • What are pollinators? • Why are pollinators important? • How does pollen transfer from the stamen to the pistil? • Do all plants need animals to pollinate?

National Curriculum Objectives:

- Identify and describe the functions of different parts of f lowering plants: roots, stem/trunk, leaves and flowers.
- Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant.
- Investigate the way in which water is transported within plants.
- Explore the part that flowers play in the life cycle of f lowering plants, including pollination, seed formation and seed dispersal.

Key Vocabulary

f lower	helps the plant to reproduce and create new life
leaf	absorbs sunlight to make food for the plant
Stem	upright part of a plant, which is usually green
soil	contains water and nutrients that plants use to grow and stay healthy
Roots	the underground part of a plant
dissection	the method of separating something into parts
seed	a part of a plant that can grow into a new plant
water transportation	the movement of water from the roots, through the stem, to the leaves and flowers
seedling	a young plant grown from a seed that has not yet fully grown
seed coating	the layer of a seed which breaks when wet
germination	the process of a seed breaking its coating and sending out its first leaves and roots
petals	attract insects to the flower
stamen	the male parts of a flowering plant pollen
pistil	the female parts of a flowering plant eggs
reproductive organs	parts of a living thing needed to make offspring
pollination	the transfer of pollen from the male part of a plant to the female part of a plant
pollen	tiny grains made in the male part of a plant
pollinators	animals which are used by plants to transfer pollen
seed dispersal	the movement of seeds away from the parent plant
life cycle	a series of stages a living thing goes through

Working Scientifically:

- Using straightforward scientific evidence to answer questions or to support their findings.
- Talk about criteria for grouping, sorting and classifying
- Asking relevant questions and using different types of scientific enquiries to answer them.
- Setting up simple practical enquiries, comparative and fair tests.
- Identifying differences, similarities or changes related to simple scientific ideas and processes.
- Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.
- Identifying differences, similarities or changes related to simple scientific ideas and processes.

SEND Core Knowledge:

Children observed and identified plant parts, such as roots, stem, leaves and flowers. Children will recap the parts of a flowering plant, then look at their functions and why they are important to the plant.

Children should have the opportunity to dissect a range of plants and identify the different parts and their functions

Common Misconceptions:

- Children may think plants get their food from the soil or that plants eat food like animals do. Explain to them that green plants make their own food from sunlight.
- Children may think that the flowers do not have a specific function for the plant. Clarify to them that the flowers play an important role in helping plants to reproduce and create new life.
- Children may think that the stems, leaves and flowers of different plants all look the same. Clarify to them that different plants will have different-sized stems, leaves and flowers, and will also have different appearances.
- Children may think that the roots “suck” in the water. Clarify to them that the roots absorb the water.
- Children may think that plants take in water from the leaves or the flowers. Explain that the roots absorb water from the soil, which then travels to the stem. The stem then transports water to different parts of the plant, such as the flowers and leaves.

Cross Curricular Links

Texts The Hidden Forest (Jeannie Baker) George and Flora's Secret Garden (Jo Elworthy)
The Yes Program - Science - gardener (conditions to grow)
The Yes Program - Science - Florist (parts of a flower)

Possible Practical Activities:

Part of a plant and their functions

In pairs, give children images of different types of plants. Ask them to label the parts of the plants. This activity could also be done outside, while looking at real plants. Children should be careful not to damage any plants. If going outside, ensure the plants in the local area are not poisonous and allergies are carefully considered. Once they have identified the parts, children should discuss the functions of the different parts.

Plant Dissection

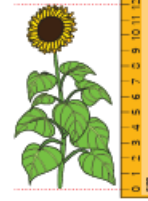
Provide children with real-life examples of different flowering plants. Ask children to dissect the plants and group them into their different parts. Encourage children to label the parts and describe their functions. Children can then note the similarities and differences between the parts.



Plan-Plant Growth

Equipment needed • plant pots (four per group) • seeds (15 per group) • soil • water

Practical activity • Put children in small groups. • scales • measuring cylinder Give each group the equipment needed for the experiment. Children should identify what the equipment is, and why it is used within the experiment.



Planning sentence stems • I predict that ... I think this will happen because ... • We are changing the ... • We are measuring the ... • We are keeping the the same.

Method 1. Get four plant pots that are the same size. 2. Using scales, measure a certain mass of soil that fills two thirds of the plant pots. Make sure this is the same for all the plant pots. 3. Plant one seed in the first pot, two seeds in the second pot, four seeds in the third pot and eight seeds in the fourth pot. 4. Using a measuring cylinder, add an agreed volume of water to each of the pots. 5. Place the pots in the same place in the classroom, with the same conditions for growth, such as light and temperature. 6. Ensure the pots are watered regularly with equal amounts of water. 7. Measure the height of the plants each week to track their growth over time.

The stem and water transportation

• Provide children with white flowers such as chrysanthemums and gypsophila. Carefully split the stems in half lengthways and put each half in two different containers with a mixture of food colour and water in each and leave overnight. Ask children to observe what has happened to the petals of these plants and provide a simple explanation as to why this has happened. • Cut the bottom off some celery stems and place inside cups of water and food colouring. After 2 hours, remove the celery stems and cut them in half. The children should be able to see the tubes inside the celery stems that transport the water. Children should explain why the different plant parts have changed colour in relation to water transportation.



Reproductive parts of a plant

• In pairs, children could dissect a flower to explore the reproductive parts. Alstroemeria or gladiolus flowers are good to use, because they have distinct reproductive parts that can be identified. Children could dissect the different reproductive parts, draw them and label them. pistil stamen • In groups, children could visit the school gardens and take photographs of different types of flower. They can label the reproductive parts and compare the similarities and differences between the flowers.