Summer Block 1

# Plants (bulbs and seeds)

© White Rose Education 2024

# Small steps

| | |
|---|---|
| Step 1 | Bulb or seed? |
| Step 2 | What do plants need to grow? |
| Step 3 | Plan – bulbs and seeds |
| Step 4 | Plant – bulbs and seeds |

© White Rose Education 2024

# Key resources

## Step 1 – Bulb or seed?

- hand lenses
- a selection of fruits and vegetables to observe seeds, e.g. melons, apples, sweet peppers, cucumbers, kiwis or tomatoes
- blunt knives
- plant bulbs, e.g. garlic, onions and daffodils

## Step 2 – What do plants need to grow?

- examples or photos of plants

## Step 3 – Plan – bulbs and seeds

- bulbs
- seeds
- soil
- plant pots
- cotton wool
- cardboard

## Step 4 – Plant – bulbs and seeds

- bulbs
- seeds
- soil
- plant pots
- cotton wool
- rulers

© White Rose Education 2024

# Bulb or seed?

## Notes and guidance

In the previous Plants block, children explored the parts of plants and conditions for their growth. In this small step, they build on this knowledge as they look at the differences between bulbs and seeds. Children should see a variety of bulbs and seeds and be confident with their definitions before they think about growing conditions for bulbs and seeds later in the block.

Within this step, children should use simple equipment such as hand lenses to make accurate observations. Children should look at common bulbs and observe shoots and roots, such as those from daffodils, onions and garlic. Children should look at seeds both inside and outside fruits, such as seeds in sweet peppers, seeds in strawberries and sunflower seeds. Encourage children to sort and group the bulbs and seeds in different ways.

## Key questions

- Is this a bulb or a seed?
- How did you group the bulbs and seeds?
  Can you group them another way?
  How many ways can you think of?
- What is different about the bulbs and seeds?
- What is similar about the bulbs and seeds?
- What do you notice about the colour of the bulbs/seeds?
- What are the different parts of a bulb?

## Things to look out for

- Children may only have experienced plant growth from seeds and may not be familiar with plants which grow from bulbs.
- Children may think that seeds can only be found on the inside of a fruit. This can be overcome by children looking at a range of seeds.

## National curriculum links

- Observe and describe how seeds and bulbs grow into mature plants.
- **Working scientifically** – Observing closely, using simple equipment.

© White Rose Education 2024

# Bulb or seed?

## Key vocabulary

- **plant** – a living thing that usually grows in soil

- **bulb** – a part of a plant which stores food and is found underground

- **seed** – a part of a plant that can grow into a new plant

- **shoot** – a part of a young plant which grows above the ground

- **roots** – part of a plant that holds the plant in the ground

## Practical ideas

- Provide children with blunt knives to dissect different fruit and vegetables to observe the seeds. Good examples to use are melons, apples, sweet peppers, cucumbers, kiwis and tomatoes.

Children should never eat any part of a plant unless instructed by an adult.

- Provide children with hand lenses to observe different parts of a bulb, identifying the roots, bulb and shoot. Examples you could use include garlic, onions and daffodils.

## Factual knowledge

- Many plants grow from bulbs or seeds.
- Bulbs and seeds come in different shapes and sizes.
- Seeds can be found inside the fruit or on the outside of the fruit.
- Bulbs store food for plants to use when they grow again.

© White Rose Education 2024

# What do plants need to grow?

## Notes and guidance

In the previous step, children explored how plants can grow from bulbs and seeds. Children have now looked at temperature in maths, so they can apply this understanding in science to look at temperature as a condition for plant growth.

In this step, children look at the best conditions for plant growth, focusing on temperature. They do not need to understand the germination process in this step, because this concept is covered in Year 3

Children should observe that some plants grow indoors and some plants grow outdoors. The plants they have planted so far have been indoors as it has been winter and spring. Now it is summer, they should understand that plants can grow outside as it is warmer.

## Key questions

- What do plants need to grow and stay healthy?
- What might be wrong with this plant?
- How can you tell if a plant is growing well?
- Does this plant look healthy?
  Why does it look healthy?/Why does it not look healthy?
- Why do we plant new plants inside in winter?
- How could you help a plant that has wilted or that does not have enough light?
  Why would this help the plant grow?

## Things to look out for

- Children may not realise that some plants still grow in winter.
- Plants can survive outside in cooler temperatures, but they grow more slowly.

## National curriculum links

- Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.
- **Working scientifically** – Record and communicate their findings in a range of ways and begin to use simple scientific language (non-statutory).

© White Rose Education 2024

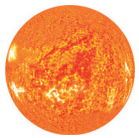
# What do plants need to grow?

## Key vocabulary

- **seed** – a part of a plant that can grow into a new plant

- **plant** – a living thing that usually grows in soil

- **sunlight** – the light from the Sun



- **temperature** – a measure of how hot or cold something is

- **growth** – when a living thing gets bigger

## Practical ideas

- Explore your local area and conduct a plant hunt with the children. They could take photos of plants and identify the conditions the plants are growing in. Children could comment on the soil, temperature, sunlight and how much rain they think each plant would get.
- Children could look at plants outside and observe the changes between the seasons. They should link these changes to the changes in temperature as the seasons change.
- Children could look at a selection of photos of plants, including some that are not growing well. They could make suggestions about what the plants would need to grow well.

## Factual knowledge

- Plants need water, light and a suitable temperature to grow.
- Plants will not be healthy if the conditions are not right.

© White Rose Education 2024

# Plan – bulbs and seeds

## Notes and guidance

In this small step, children begin an observation over time enquiry. They explore how the bulbs and seeds they plant change over time. Depending on weather conditions, children could plant some bulbs and seeds inside and some outside. Children do not need to use the term "germination" until Year 3

During this investigation, children grow bulbs and seeds under different temperature conditions, such as in pots outside and inside, or in pots in cooler and hotter areas of the school. Light and dark conditions were observed in the previous Plants block. Here, the effect of changing the temperature the plant is kept at can be observed. Children will make predictions and should create a schedule for recording plant growth.

## Things to look out for

- Bulbs planted in summer can take longer to reach maturity after sprouting than those planted in autumn, winter or spring.
- When planting outside, be aware that local wildlife may eat the bulbs or seeds. The bulbs or seeds can be protected using recycled plastic bottles.

## Key questions

- What do bulbs and seeds need to grow and be healthy?
- Where could you plant your bulbs and seeds in school?
- How do you predict the temperature will affect the growth of the plants?
- How long will you observe the bulbs and seeds?
- What do you expect to see next week/ next month?
- How will you record your results?
- How often should you measure the plant's growth?

## Enquiry question

- How do bulbs and seeds change over time?

## National curriculum links

- Observe and describe how seeds and bulbs grow into mature plants.
- **Working scientifically** – Asking simple questions and recognising that they can be answered in different ways.

© White Rose Education 2024

# Plan – bulbs and seeds

## Key vocabulary

- **bulb** – a part of a plant which stores food and is found underground

- **seed** – a part of a plant that can grow into a new plant

- **plant** – a living thing that usually grows in soil

- **temperature** – a measure of how hot or cold something is

- **growth** – when a living thing gets bigger

## Equipment needed

- plant pots
- trowels
- seeds
- bulbs
- soil
- sticky labels
- plant tags

## Practical activity

- Put children in small groups. 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 will put one pot _____ .
- We will put the other pot _____ .
- We will measure the _____ .

© White Rose Education 2024

# Plant – bulbs and seeds

## Notes and guidance

In this step, children grow bulbs and seeds under different temperature conditions. This could include pots outside and inside, or in pots in cooler and hotter areas of the school. Here the effect of changing one condition can be observed over time. Depending on the weather, some of the work may be completed outside. Children have made predictions and should have created a schedule for recording plant growth in the previous step.

Children should plant their bulbs and seeds in each of their chosen locations. Throughout the experiment, children should regularly check on their plants and make careful observations and measurements of the plants in the different conditions. They should record the changes that they observe over time.

## Things to look out for

- The amount of water may be different for each bulb or seed depending on the location it is kept in. For example if it is kept outside and it is particularly hot, more water would be needed than for the bulb/seed kept indoors.
- When planting outside, be aware that local wildlife may eat the bulbs or seeds. These bulbs and seeds can be protected using recycled plastic bottles.

## Key questions

- What will you use to measure the growth?
- How will you record your data?
- What do plants need to grow and stay health
- What differences did you notice between the bulbs and the seeds?
- If you were to grow a bulb or seed, where would you plant it? Why would you plant it there?

## Enquiry question

- How do bulbs and seeds change over time?

## National curriculum links

- Observe and describe how seeds and bulbs grow into mature plants.
- **Working scientifically** – Performing simple tests.

© White Rose Education 2024

# Plant – bulbs and seeds

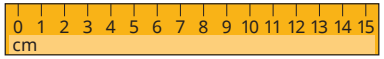
## Key vocabulary

- **bulb** – a part of a plant which stores food and is found underground

- **seed** – a part of a plant that can grow into a new plant

- **compost** – a material used to help plants grow

- **measurement** – what you do to find the size or amount of something




- **observe** – to look closely at something

## Equipment needed

- plant pots
- trowels
- seeds
- bulbs
- soil
- sticky labels
- plant tags

## Method

1. Put children in small groups.
2. Give each group four plant pots, soil, bulbs, seeds and a trowel.
3. Add the same amount of soil into each pot. Children do not need to measure the mass of the soil but can add the same amount of soil using the trowel.
4. Add the seeds to the soil in two pots and cover with a thin layer of soil. Label these pots as seeds.
5. Add the bulbs to the soil in two pots and cover with a thin layer of soil. Label these pots as bulbs.
6. Place the planted bulbs and seeds in two places with different temperatures.
7. Regularly observe the pots and record any changes over time.

© White Rose Education 2024