

Let's Learn

What Are Flowering and Non-flowering Plants?

You have learnt that plants have roots, stems and leaves. Some plants produce flowers too. They are called flowering plants.



Rose and daisy are flowering plants.

Not all plants produce flowers. Plants that do not produce flowers are called non-flowering plants.



Ferns and conifers are non-flowering plants.



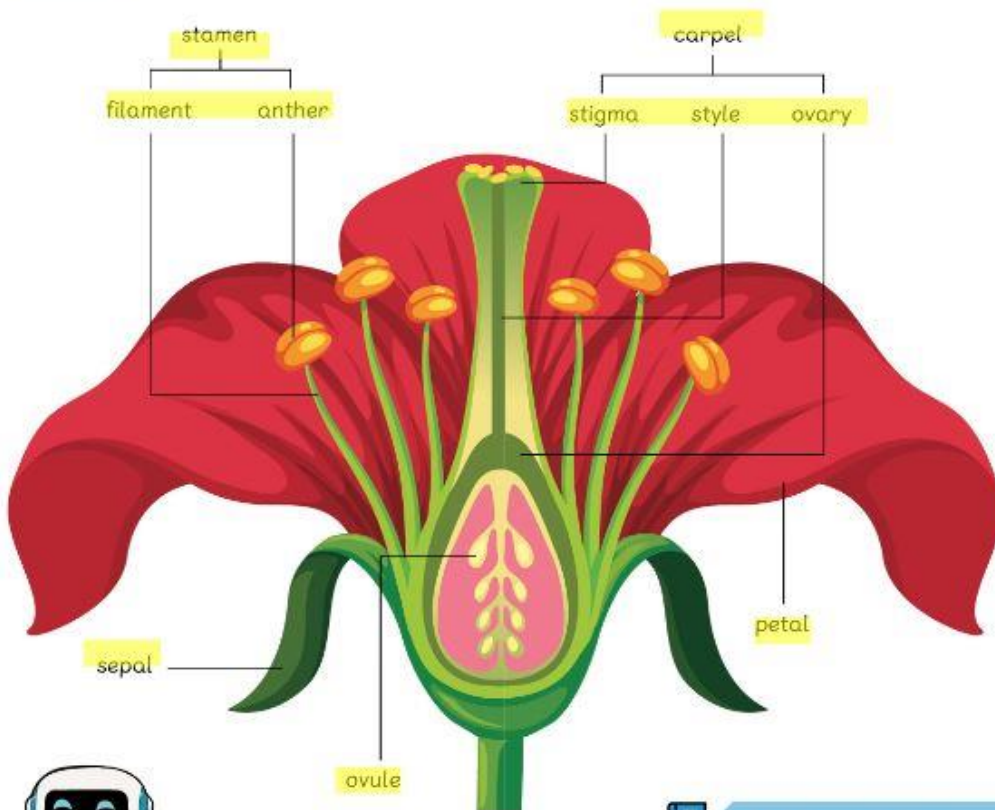
What Are the Parts of a Flower?

Flowers are the parts of a plant that help it reproduce. They are the reproductive parts of the plant.

The petals of a flower surround its male and female parts. The **stamen** of the flower includes the male parts. The **carpel** includes the female parts. Each part of the flower has a different function.



The labelled diagram below is a model of a flower. As some flowers look different from others, a model helps us understand the common features of flowers.



How do you think non-flowering plants reproduce?



Word Boost

surround
function

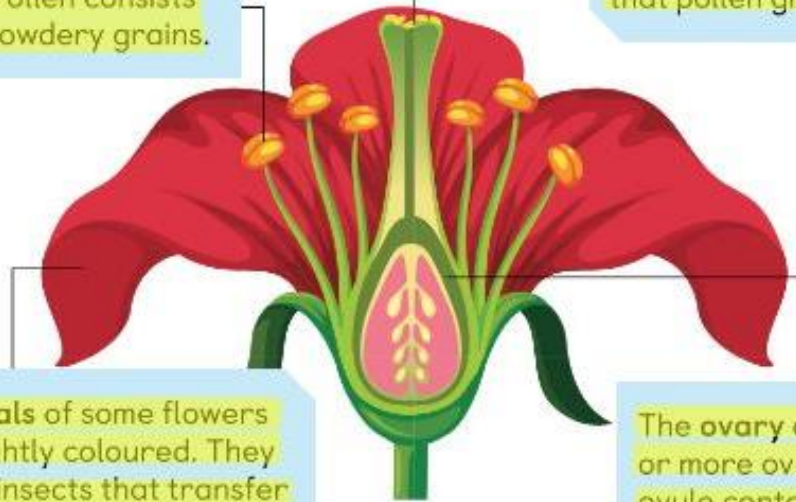
What Are the Functions of Some Parts of a Flower?

The anther contains pollen. Pollen consists of tiny powdery grains.

The stigma is the part that pollen grains land on.

The petals of some flowers are brightly coloured. They attract insects that transfer pollen from the male part to the female part. This helps the plant to reproduce.

The ovary contains one or more ovules. Each ovule contains an egg.



Check Your Learning

Name some parts of a flower and describe their functions.



Tick (✓) to show what you can do.

- I can state that not all plants produce flowers.
- I can identify parts of a flower.
- I can describe the functions of some parts of a flower.
- I can sort living things through observation.
- I can complete a key based on differences that can be observed.
- I can explain that a model shows the important features of an object.

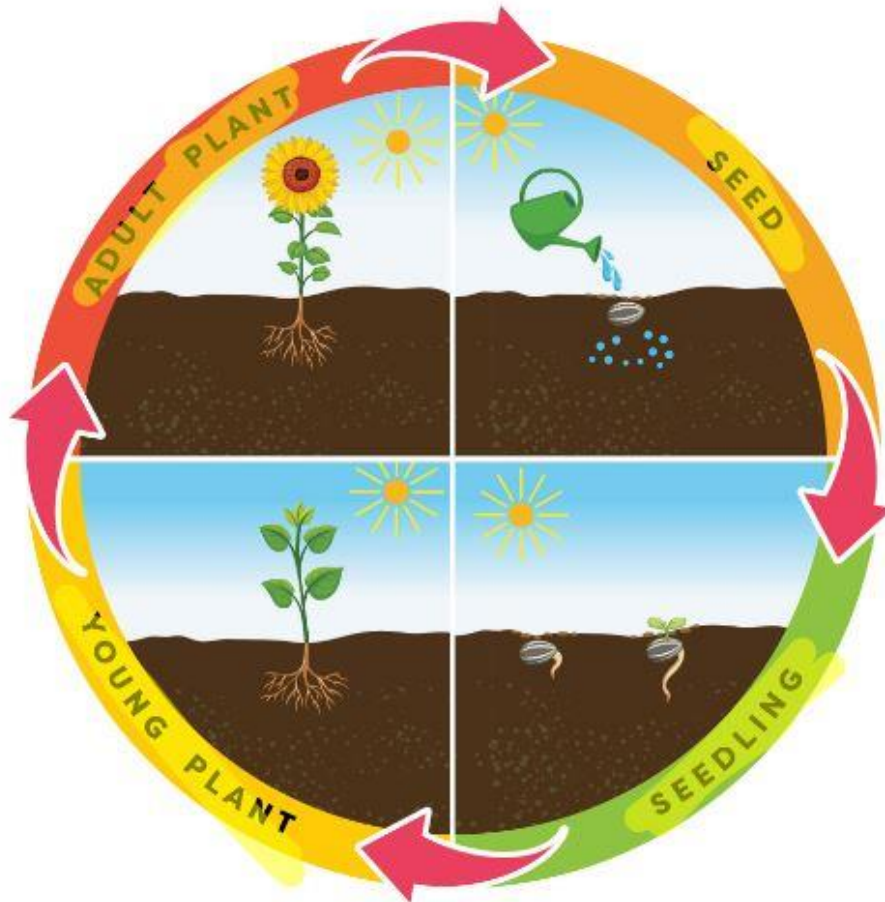
Activity Book
Activity IA, p. 1

Let's Learn

What Is the Life Cycle of a Flowering Plant?



Scientists use diagrams to represent certain scientific ideas. The diagram below shows how a seed goes through various stages of growth and development before it develops into an adult plant. These stages repeat in a cycle and make up the life cycle of the flowering plant.



With the help of the diagram above, share with a partner what is happening in the various stages of the life cycle of the flowering plant.



Word Boost

develops
repeat
cycle

The reproduction of flowering plants involves many processes. Pollination, fertilisation, fruit and seed production, and dispersal are some of them.

What Is Pollination?

Pollen grains need to be transferred from the anther to the stigma of the same flower or another flower. This transfer of pollen grains is known as **pollination**.

Insects, birds and wind play an important part in pollinating flowers. As insects and birds travel from one flower to another, pollen gets stuck to their bodies. Thus, they help transfer pollen from the anther to the stigma.



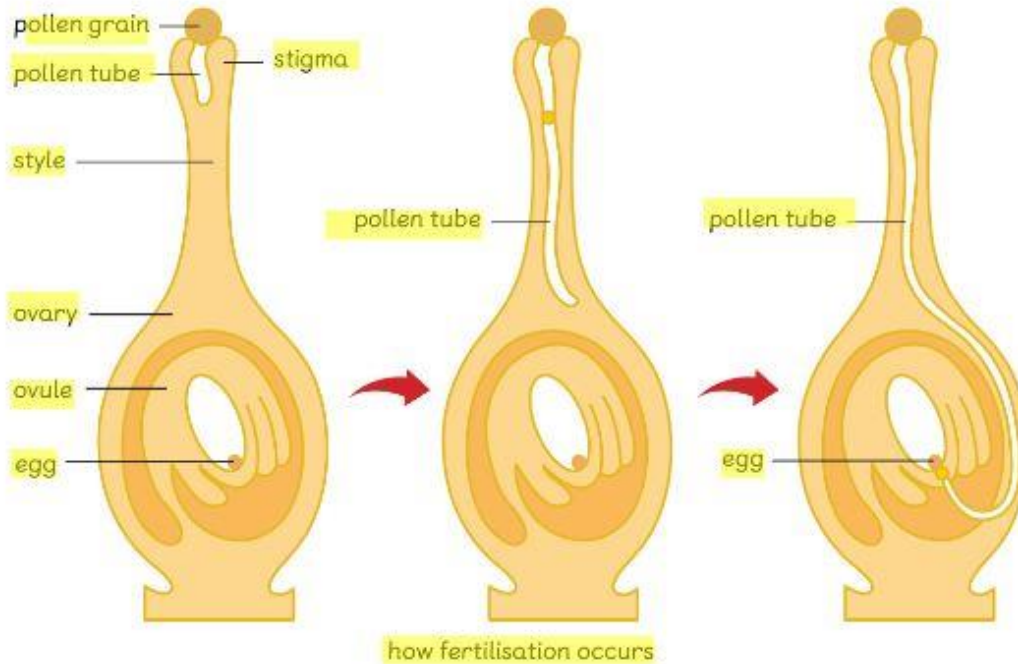
an insect and a bird pollinating flowers

Some flowers are also pollinated by wind. The light pollen grains are easily carried by the wind from one flower to another.



How Are Fruits and Seeds Produced?

After pollination, the pollen and egg join in a process called **fertilisation**. The diagram below shows what happens after a pollen grain lands on a stigma.



1.

When a pollen grain lands on the stigma, it develops a tiny tube called a pollen tube.

2.

The pollen tube grows downwards into the ovary.

3.

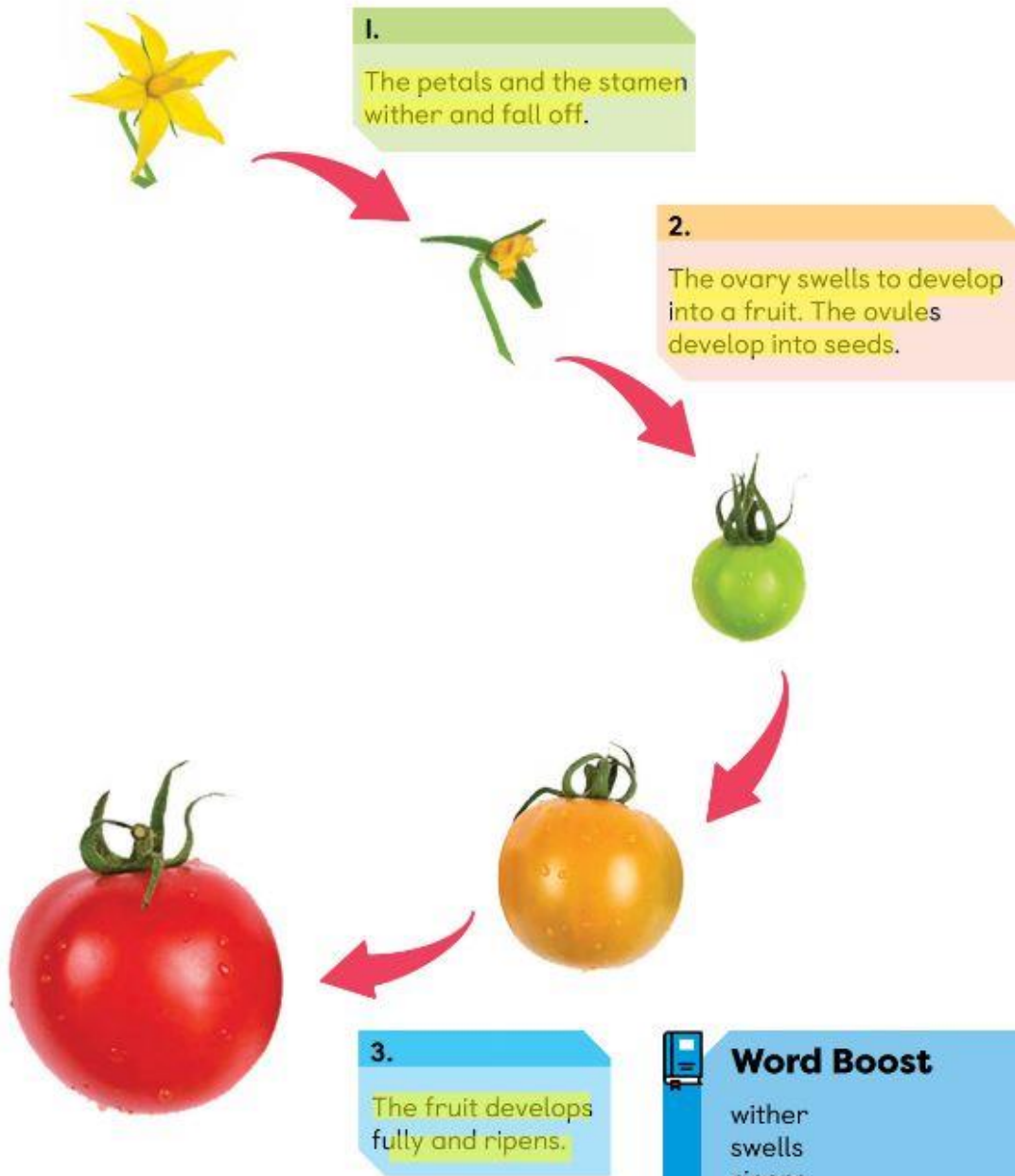
The pollen and the egg join. Fertilisation occurs.



Word Boost

tube

This diagram shows how fruits and seeds start to develop after fertilisation.



Word Boost

wither
swells
ripens

development of fruit and seeds after fertilisation

What Is Seed Dispersal?

Seeds need to be scattered away from the parent plant. Growing close to the parent plant can result in overcrowding. This can cause plants to compete with the parent plant and one another for water, light and space. The plants may not grow healthily and may die.

The scattering of seeds away from the parent plant is known as **seed dispersal**. Seed dispersal allows the plants to have enough water, light and space.

Different seeds are dispersed in various ways, such as by wind, water, animals or explosion.



Word Boost

overcrowding
compete
scattering



Some seeds are dispersed by wind.



Some seeds are dispersed by water.



Some seeds are dispersed by animals.



Some fruits explode to disperse their seeds.

What characteristics do you think the respective seeds have for the various methods of dispersal?



Using some science books or the Internet, find out how the following seeds are dispersed.



spanish needles



violet



maple



cattail

Group the seeds under the correct method of dispersal.

Wind	Water	Animals	Explosion
Maple	cattail	spanish needles	violet

Check Your Learning

How are seeds formed?
Name the different ways in which seeds can be dispersed.



Option



Watch!



Scan this page to watch a video on the life cycle of a flowering plant.

Tick (✓) to show what you can do.

- I can name the stages in the life cycle of a flowering plant.
- I can describe how flowering plants reproduce.
- I can use a diagram to represent scientific ideas.

Activity Book
Activity 1B, p. 3

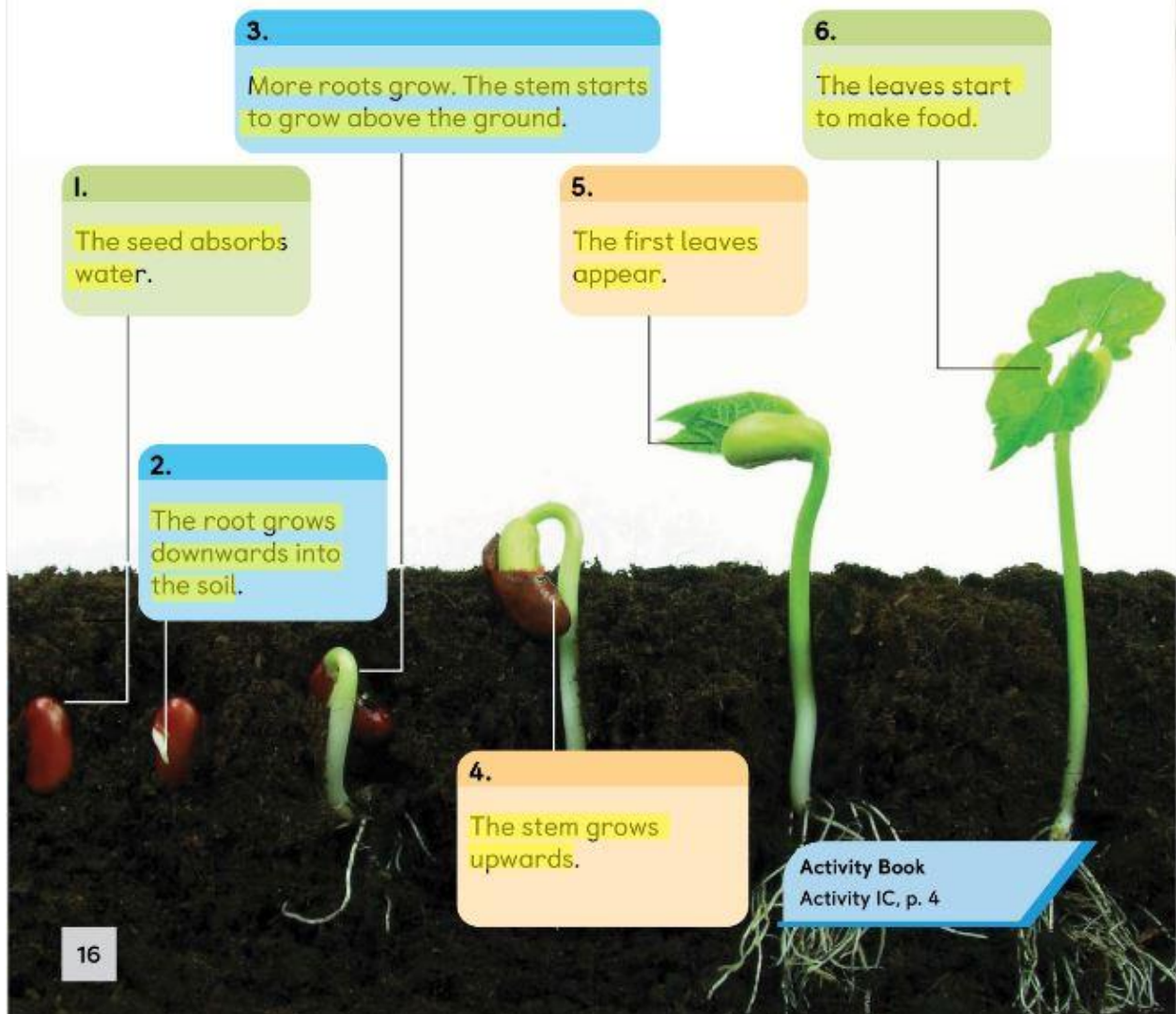
Let's Learn

What Is Germination?

The process by which a seed develops into a young plant is known as germination.

Seeds need air, water and a suitable temperature to germinate. If the temperature is too high or too low, seeds may not germinate.

This diagram shows how a seed germinates.







Practice Worksheet

1. Tick (✓) the correct box beside each sentence.

	True	False
Leaves are the reproductive parts of flowering plants.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The anther contains pollen grains.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
The transfer of pollen grains from the anther to the stigma is known as fertilisation.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The ovary develops into a fruit after fertilisation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Seeds are dispersed only by animals.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Seeds need light to germinate.	<input type="checkbox"/>	<input checked="" type="checkbox"/>

2. Draw lines to match the parts of flowers to their functions.

part		function
anther		attract insects for pollination
ovary		the part where pollen lands
petals		contains pollen grains
stigma		contains ovules that may develop into seeds



3. This plant has brightly coloured flowers that are useful for a process.



Which process is it?

Tick (✓) the correct answer.

germination

pollination

seed dispersal

4. Reza and Vinit placed some bean seeds in identical pots of soil and gave them an equal amount of water. Reza kept his pot in the refrigerator. Vinit kept his pot at the window sill. The pictures below show what they observed a few days later.



Reza's pot



Vinit's pot

Give **one** reason why the seeds in Reza's pot did not germinate.

It was kept in the refrigerator, there is not enough warmth for the seeds to germinate since the temperature is too cold.