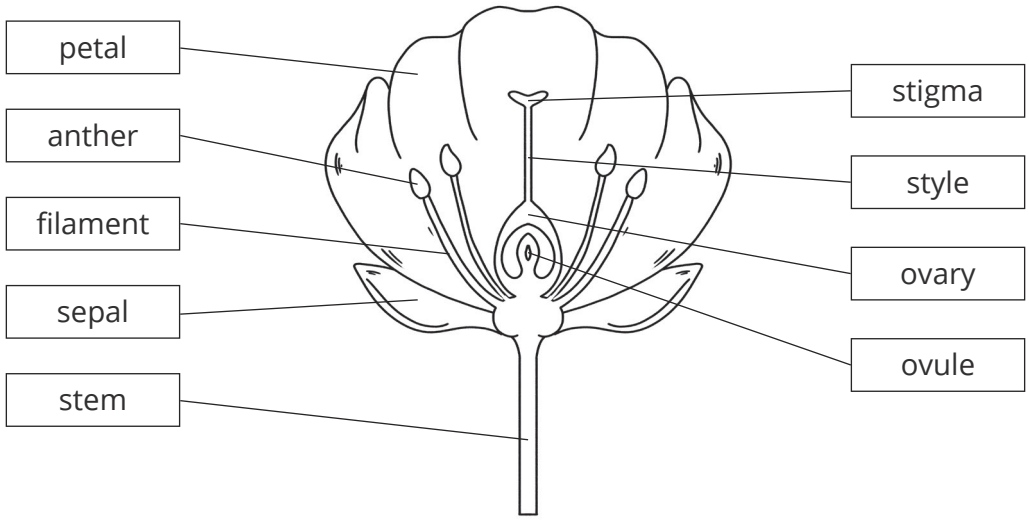
Plant Reproduction

Plants are living organisms. All living organisms demonstrate the seven life processes including respiration, nutrition, and excretion. Often a mnemonic is used to remember them; MRS GREN.

The diagram below shows the cross-section of a flower.



Different parts of the plant make up the male or female reproductive organs. The stamen is the collective name of the male reproductive parts and is made up of the filament and anther. The female part is named the pistil, and is made up of the stigma, style, and ovary.

1. List all **seven** life processes. Give a brief description of each.

M _____

_____

R _____

_____

S _____

_____

G _____

_____

R _____

_____

E _____

_____

N _____

_____

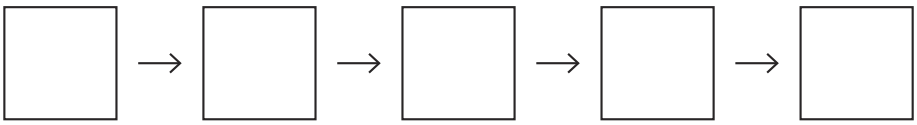
Pollination is the process of transferring pollen grains from the male sex organ of the plant to the female sex organ, to allow fertilisation to occur. When fertilisation occurs, the ovule develops into seeds and the ovary becomes the fruit.

2. Match each part of the flower to the function, by drawing a straight line.

anther	Covered in a sticky substance to trap pollen grains.
stigma	Contains the female sex cells and develops into a seed after fertilisation.
ovary	Contains pollen grains which carry the male sex cells.
ovule	Large female organ of the plant. It develops into the fruit surrounding the seed after fertilisation.

Seeds must move away from the parent plant so that they have enough space and nutrients to develop into new plants. This is called dispersal. Seeds are dispersed in different ways and have special features and adaptations which make them more efficient at certain methods of seed dispersal. Once they have been successfully dispersed away from the parent plant, seeds grow and develop into new plants.

3. The statements below describe stages of fertilisation. Write the letter into the boxes below to show the correct order of the process.



A. A pollen grain travels along the tube and fuses with the ovule, in the ovary.

B. The ovary develops into a fruit.

C. Pollen becomes attached to the stigma.

D. The ovule develops into a seed.

E. A pollen tube grows from the pollen grain, down the style.

4. Describe how you would expect a seed to be adapted for each method of seed dispersal given below.

animal fur _____

_____

wind _____

_____

excretion _____

_____

Hand pollination (mechanical pollination) is a technique that is used to pollinate plants if it not possible or practical for natural pollination to occur.

5. Explain how and why a gardener might hand pollinate his lily plants.

_____

_____

_____

_____

_____

_____

_____

_____

_____

Plant Reproduction **Answers**

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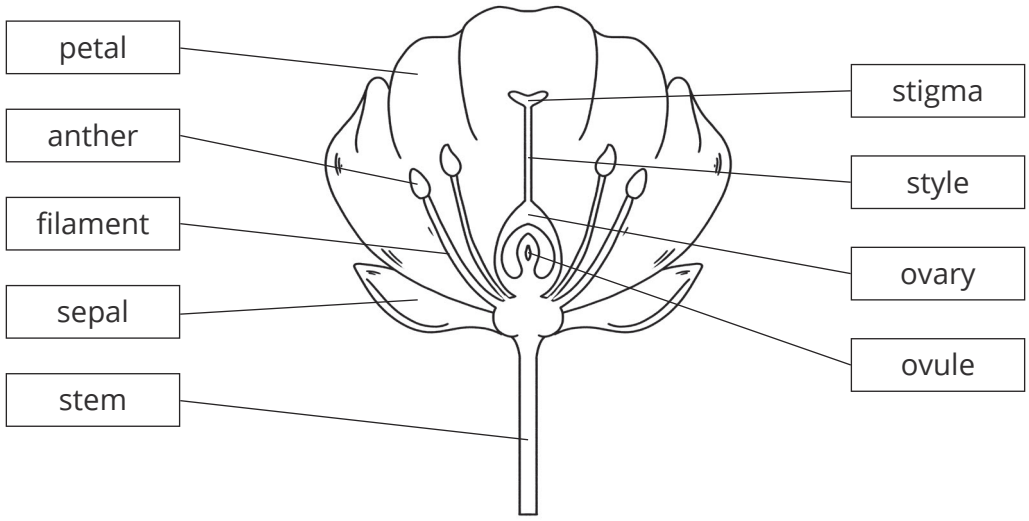


Different parts of the plant make up the male or female reproductive organs. The stamen is the collective name of the male reproductive parts and is made up of the filament and anther. The female part is named the pistil, and is made up of the stigma, style, and ovary.

1. List all **seven** life processes. Give a brief description of each.

   Movement – all living things can move, consciously or in response to environmental stimuli.

   Respiration – all living things respire, which is to use oxygen to release energy from glucose.

   Sensitivity – all living things have sense organs that enable them to detect external stimuli.

   Growth – all living things grow over time.

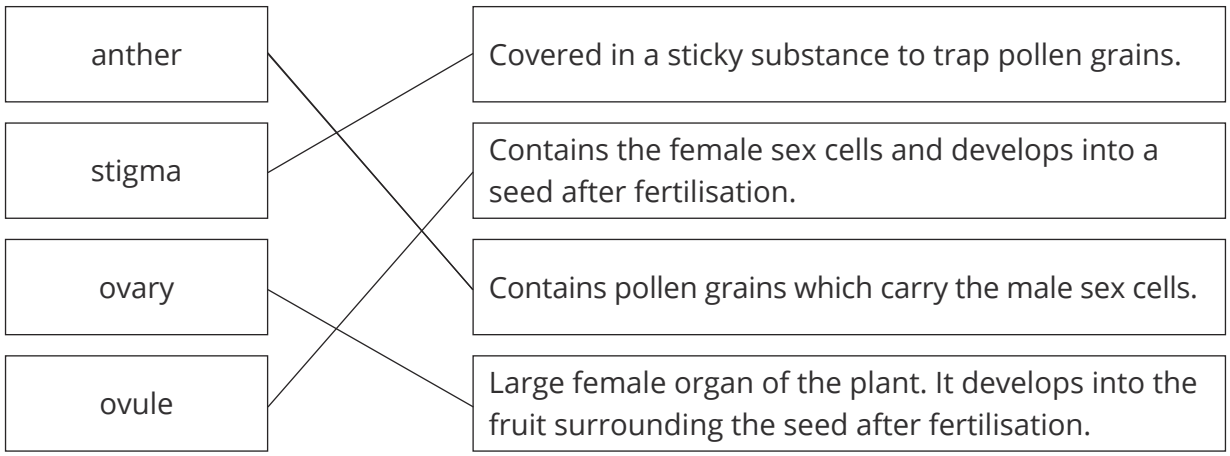
   Reproduction – all living things produce offspring.

   Excretion – all living things excrete waste products.

   Nutrition – all living things require a source of nutrition.

Pollination is the process of transferring pollen grains from the male sex organ of the plant to the female sex organ, to allow fertilisation to occur. When fertilisation occurs, the ovule develops into seeds and the ovary becomes the fruit.

2. Match each part of the flower to the function, by drawing a straight line.



Seeds must move away from the parent plant so that they have enough space and nutrients to develop into new plants. This is called dispersal. Seeds are dispersed in different ways and have special features and adaptations which make them more efficient at certain methods of seed dispersal. Once they have been successfully dispersed away from the parent plant, seeds grow and develop into new plants.

3. The statements below describe stages of fertilisation. Write the letter into the boxes below to show the correct order of the process.

A. A pollen grain travels along the tube and fuses with the ovule, in the ovary.

B. The ovary develops into a fruit.

C. Pollen becomes attached to the stigma.

D. The ovule develops into a seed.

E. A pollen tube grows from the pollen grain, down the style.

4. Describe how you would expect a seed to be adapted for each method of seed dispersal given below.

animal fur	**barbs or hooks covering the surface** **sticky secretions to attach to fur**
wind	**large surface area** **lightweight structure**
excretion	**tasty, attractive fruit** **seeds have a tough coating to prevent digestion**

Hand pollination (mechanical pollination) is a technique that is used to pollinate plants if it not possible or practical for natural pollination to occur.

5. Explain how and why a gardener might hand pollinate his lily plants.

   Hand pollination can be done using a fingertip or small paintbrush / cotton stick to carefully collect pollen grains from the anther of a plant. These are gently transferred to the stigma of another plant.

   This is often done in order to facilitate selective breeding and to encourage the development of the most desirable traits in a plant or flower.

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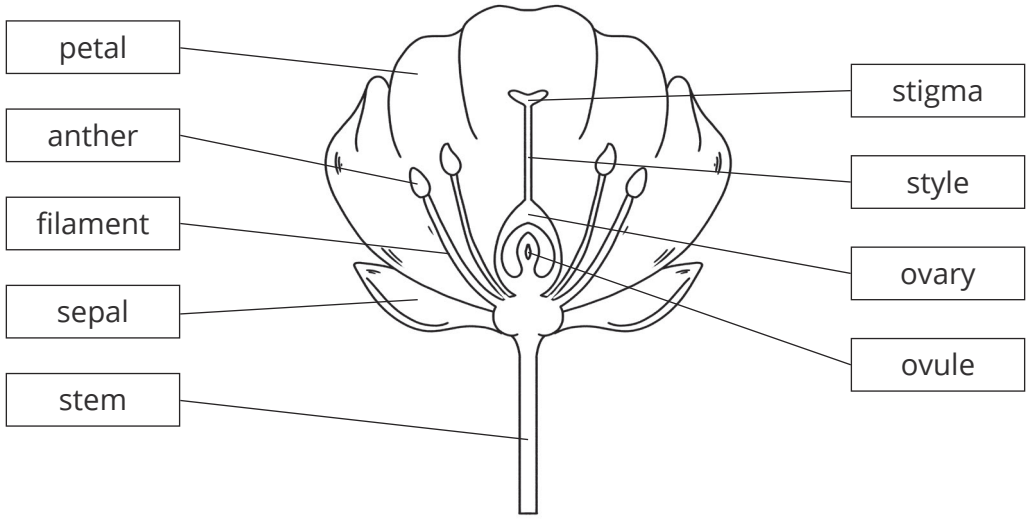

Different parts of the plant make up the male or female reproductive organs. The stamen is the collective name of the male reproductive parts and is made up of the filament and anther. The female part is named the pistil and is made up of the stigma, style, and ovary. The ovule is inside the ovary.

1. Read the description of each life process and write the name of the one being described.

_____ All living things require a source of nutrition.

_____ All living things excrete waste products.

_____ All living things produce offspring.

_____ All living things grow over time.

Pollination is the process of transferring pollen grains from the male sex organ of the plant to the female sex organ, to allow fertilisation to occur. When fertilisation occurs, the ovule develops into seeds and the ovary becomes the fruit.

2. Match each part of the flower to the function, by drawing a straight line.

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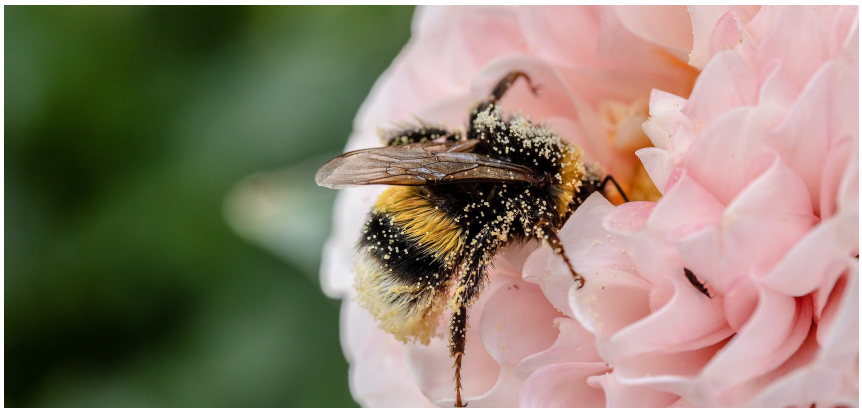

3. Describe how pollination occurs naturally.

Seeds must move away from the parent plant so that they have enough space and nutrients to develop into new plants. This is called dispersal. Seeds are dispersed in different ways and have special features and adaptations which make them more efficient at certain methods of seed dispersal. Once they have been successfully dispersed away from the parent plant, seeds grow and develop into new plants.

4. Read the statements below about fertilisation. Tick all the statements which are **true**.

- ☐ The ovule develops into a seed.
- ☐ The ovary develops into a seed.
- ☐ The ovule develops into a fruit.
- ☐ The ovary develops into a fruit.
- ☐ A pollen tube grows from the pollen grain, down the style.
- ☐ A pollen tube grows from the pollen grain, down the stem.
- ☐ Pollen becomes attached to the stigma.
- ☐ Pollen becomes attached to the ovary.

5. Look at each seed below. Tick one box for each seed to say which dispersal method it is adapted to.

		
dandelion	avocado	maple seed
☐ animal fur	☐ animal fur	☐ animal fur
☐ explosion	☐ explosion	☐ explosion
☐ ingestion (eating)	☐ ingestion (eating)	☐ ingestion (eating)
☐ wind	☐ wind	☐ wind

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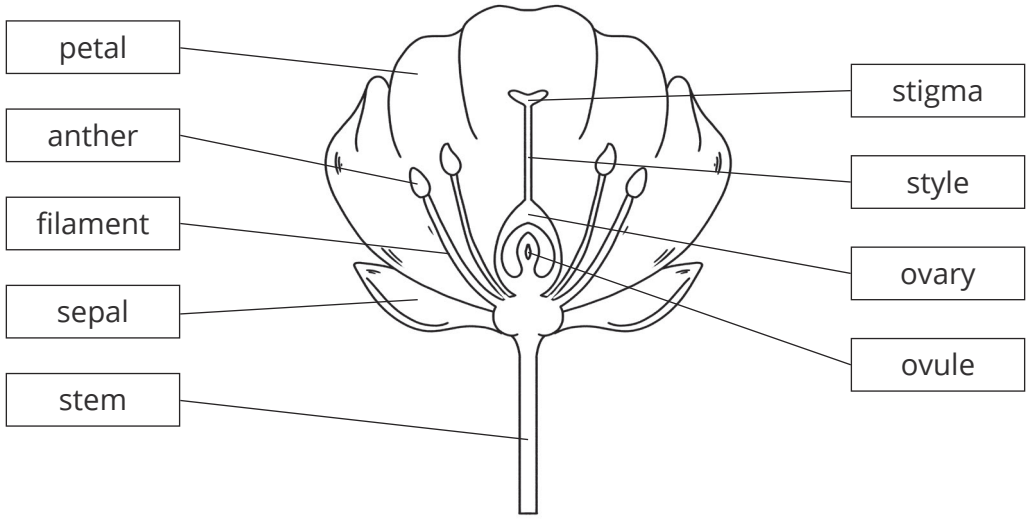

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1. Read the description of each life process and write the name of the one being described.

nutrition	All living things require a source of nutrition.
excretion	All living things excrete waste products.
reproduction	All living things produce offspring.
growth	All living things grow over time.

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3. Describe how pollination occurs naturally.

Insects act as pollinators. When they visit a flower, they brush past the anthers and pollen grains become attached to their legs. When the insect visits another flower, some of the grains fall off and become trapped on the stigma.

Wind transfers pollen over long distances.

Some plants self-pollinate when pollen grains become attached to the stigma of the same plant.

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4. Read the statements below about fertilisation. Tick all the statements which are **true**.

- [x] The ovule develops into a seed.
- [ ] The ovary develops into a seed.
- [ ] The ovule develops into a fruit.
- [x] The ovary develops into a fruit.
- [x] A pollen tube grows from the pollen grain, down the style.
- [ ] A pollen tube grows from the pollen grain, down the stem.
- [x] Pollen becomes attached to the stigma.
- [ ] Pollen becomes attached to the ovary.

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	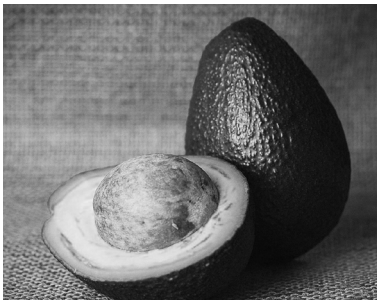	
dandelion	avocado	maple seed
[ ] animal fur	[ ] animal fur	[ ] animal fur
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[x] wind	[ ] wind	[x] wind