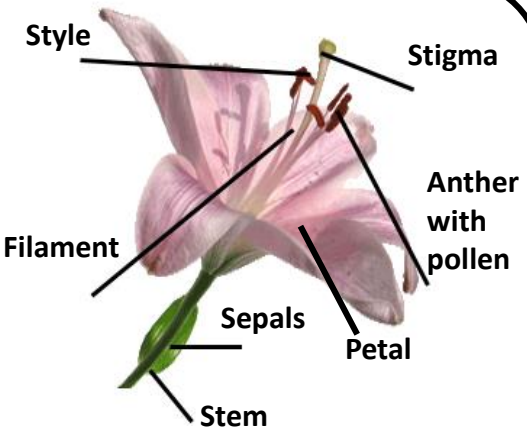
Knowledge Organiser

Year 4 ♦ Science ♦ Autumn 1: Plants

Key Vocabulary	
Word	**Meaning**
Ovule	The egg cell which joins with pollen to produce seeds and allows plants to reproduce.
Stamen	Male part of a plant, consisting of an anther and filament.
Pistil	Female part of a plant, consisting of the stigma, style and ovary.
Germination	The growth of a seed into a new plant.
Pollination	A process by which pollen is transferred to the female parts of the plant to produce a seed and thus reproduce.
Cross-pollination	A pollinator transfers the pollen from one flower to another.
Fertilisation	When pollen joins with the ovule (egg) and a new seed is created.
Seed dispersal	The movement or transport of seeds away from the parent plant.

Parts and the Functions of a Flower

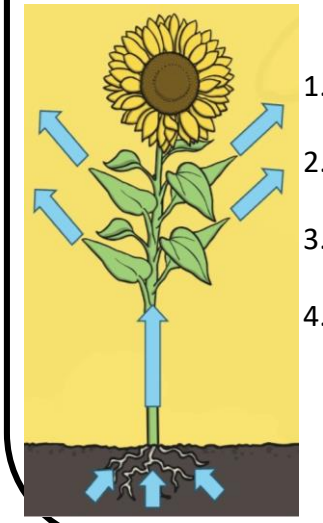
- **Style:** female part of the flower. Connects the ovary to the pollen-receptive stigma.
- **Filament:** holds the anther up, making the pollen accessible for pollinators (bees).
- **Stem:** holds the flower upright and carries both water and nutrients to different parts of the plant.
- **Sepals**: protects the unopen flower.
- **Petal:** attract pollinators.
- **Anther with pollen:** produces the pollen.
- **Stigma**: female part of the flower which collects pollen.



The Lifecycle of a Plant

1. Seed
2. **Germination**.
3. Growth
4. Pollination
5. Reproduction
6. Seed dispersal.

Water Transportation



1. The **roots** absorb water from the soil.
2. The **stem** transports water to the leaves.
3. Water evaporates from the **leaves.**
4. This evaporation causes more water to be absorbed by the **stem.**

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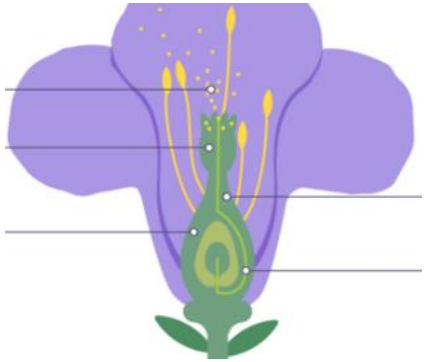
Pollination

1. Flowers' bright petals **attract** insects into the flower.
2. As the bee collects **nectar** from a flower, the pollen produced in the **stamen** is rubbed onto it**.**
3. When a bee visits another flower, it transfers the **pollen** to the new flower.
4. Some flowering plants use wind to move their pollen. As the wind blows, thousands of **pollen grains** are released.

Fertilisation

1. Fertilisation happens when the **pollen** from one flower sticks to the **stigma** of another.
2. The pollen travels along the **style** to reach the **ovary**.
3. Afterwards, the pollen joins with the **ovules** inside, and the new **seeds** are produced.



What are the five methods for seed dispersal?

Burst/explosion: peas have pods full off seeds which burst and are randomly scattered around the area.

Wind: dandelion clocks have fruits which are adapted to use the wind to carry their seeds away.

Water: water lilies use water to disperse their seeds. They produce light seeds which floats away in the water for a while, then sink to the bottom of a pond to grow a new lily.

Shakers: poppies produce their seeds. Once flowered, a long stem with a seed pod is left. These pods have a small hole at the top, relying on the wind to shake them to scatter.

Seeds as foods: eaten by animals, the seed passes through the animal unharmed and out of the end with a ready supply of fertiliser. It ensures the seed is fertilised to help it to grow.

Extending Your Learning

1. Dissect different flowers and compare their features.
2. Visit Kew Gardens/Cambridge Botanic Gardens and discover many historical, fossilised plants.
3. Buy seeds and examine its growth in a notebook overtime.
4. Create a self-watering plant device (sustainable): https://explorify.uk/en/activities/problem-solvers/make-a-plant-self-watering-device

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