

Year 3 –Science- How Does My Garden Grow?

Summer 1 Knowledge Organiser



In this unit children will build on their knowledge from Key Stage 1 of plants and what they need to live and grow. They will explore the parts of the flower in detail and learn about the life cycle of flowering plants, including pollination, seed formation and seed dispersal.

Key knowledge

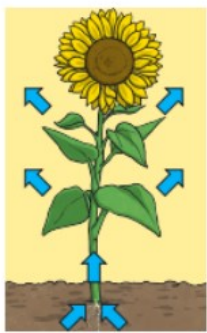
What do plants need to grow?

Plants need air, light, water, warmth, nutrients, time and room to grow. A healthy plant will survive because it can make its own food. All of the parts of the plant have a special function so that it can continue to stay healthy.

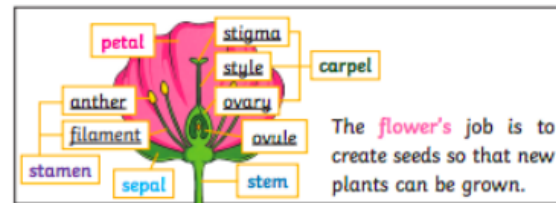
Each plant has roots, a stem and leaves. Flowering plants also produce seeds and flowers with petals.

How Water Moves through a Plant

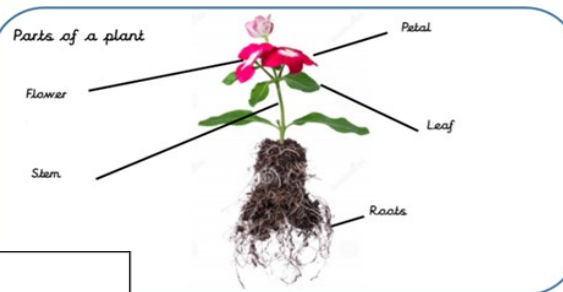
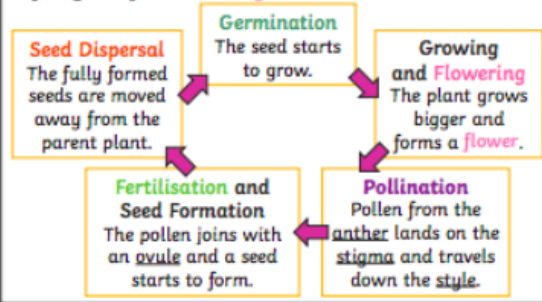
1. The **roots** absorb water from the soil.
2. The **stem** transports water to the **leaves**.
3. Water **evaporates** from the **leaves**.
4. This **evaporation** causes more water to be sucked up the **stem**.



The water is sucked up the **stem** like water being sucked up through a straw.



Life Cycle of a Flowering Plant



Seed Dispersal

Seeds can be dispersed by:



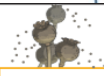
dropping



carrying



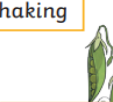
water



shaking



eating



bursting

Key Vocabulary

Absorb— take in or soak up a liquid.

- **Air**—the mixture of gases that surround the Earth and that we breathe.
- **Cross pollination**— Cross pollination is when pollen from one plant is transferred to another plant by wind or a pollinator.
- **Evaporation**—When liquid turns to gas.
- **Fertilisation** - When the male and female parts of the flower have mixed in order to make seeds for new plants.
- **Light**—form of energy that enables us to see things around us.
- **Nutrients**— a substance that is needed for growth and development.
- **Roots**— absorbs water from the soil and anchors the plant to the ground .
- **Self pollination**—Self pollination is when pollination happens in one plant.
- **Stem-/Trunk**- Carries water, minerals and food from the roots to the leaves and flowers
- **Leaf**— Absorbs light and carbon dioxide to make food
- **Flower**— makes seeds to disperse.
- **Petals**- The part of the flower that is often colourful to attract pollinators e.g. bees.

Key Questions

- What are the parts of a flowering plant? What is the function of each part?
- What do plants need to grow?
- How does 'air' help a plant to grow?
- How does 'light' help a plant to grow?
- How does 'water' help a plant to grow?
- How does the 'temperature' help a plant to grow?
- How does 'nutrients' help a plant to grow?
- How does 'space and time' help a plant to grow?
- What are the different parts of a flower?
- What is pollination?
- What is cross-pollination? What is self pollination?
- How can pollen during cross-pollination be carried?
- What is fertilisation?
- What is seed dispersal?

Year 3 – Science- Mirror, Mirror Summer 2 Knowledge Organiser



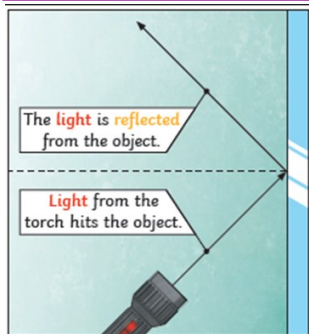
Heathfield Schools' Partnership

In this unit children will learn about how light reflects off of different surfaces and how the type of surface will change the amount of light reflected. They will learn about different light sources, how light from the sun can be dangerous and how shadows are formed.

Key Questions

- What controls the amount of light that enters the eye? If too much light enters the eye, what can it damage?
- How can you protect your eyes from sunlight?
- How do we see things?
- How can a light source emit light?
- Can you name some examples of light sources that emit light by burning?
- Can you name some examples of light sources that emit light by electricity?
- Can you name some examples of light sources that emit light by chemical reaction?
- What is darkness?
- What happens when you see an opaque material? Can you give some examples of opaque materials?
- What happens when you see a translucent material? Can you give some examples of translucent materials?
- What happens when you see a transparent material? Can you give some examples of transparent materials?
- How is a shadow caused?
- What will the shadow look like when the light source is directly above the object?
- What will the shadow look like when the light source is to one side of the object?
- How do shadows change over the course of a day?
- When is a shadow larger? When is a shadow smaller?

Key knowledge



When light hits an object, it is reflected (bounces off). Reflective surfaces and materials can be very useful such as: hi-vis jackets and cat's eyes. Mirrors reflect light very well, so they create a clear image. An image in a mirror appears to be reversed. For example, if you look in a mirror and raise a right hand, the mirror image appears to raise its left hand. Some surfaces and materials do not reflect very well. These surfaces are rough and uneven.

Key Vocabulary

Light source— is something that emits light by burning, electricity or a chemical reaction.

Opaque—a material which light cannot pass through at all.

Pupils— the round opening in the centre of the iris. The pupil changes size to let light into the eye.

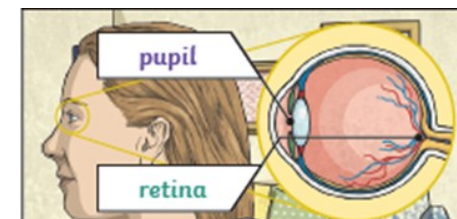
Reflective— when light bounces off an object.

Retina— a part of the eye that is very sensitive to light.

Shadow— A dark area caused when light is blocked by an opaque object.

Translucent—a material through which light can pass partially, we can partly see through these objects.

Transparent—a material through which light can pass completely.



A shadow is caused when light is blocked by an opaque object. When the light source is directly above the object, the shadow will be directly underneath. When the light source is to one side of an object, the shadow will appear on the opposite side. The shadow will also be longer.

The pupils control the amount of light entering the eyes. If too much light enters the eyes, it can damage the retina. To help protect your eyes from sunlight, you can wear a hat with a wide brim and sunglasses with a UV rating.



Scientific enquiry approaches are part of our science curriculum and are the different ways that we can carry out scientific investigations.

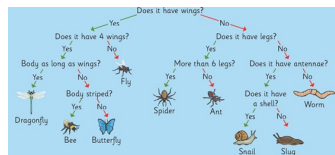
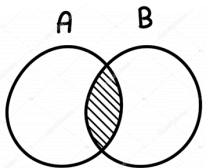
Observing over time

- Use different senses.
- Observe changes over different periods of time.



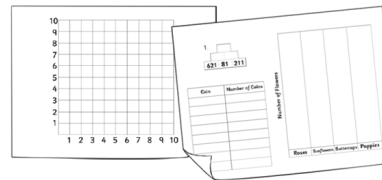
Identifying and classifying

- Naming and grouping.
- Making connections, looking at similarities and differences.



Pattern seeking

- All variables cannot be controlled.
- Look for relationships between variables



Fair testing

- All variables are controlled.
- What you change is in numbers.



Researching

- When we cannot investigate in school.
- Books, an expert, the internet.



Comparative testing

- All variables are controlled.
- What you change is in words.

