



PLANTS

KNOWLEDGE ORGANISER



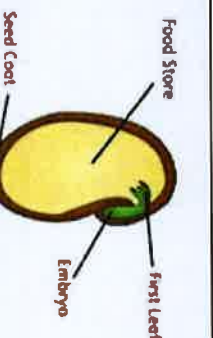
V2

What you should already know...



- Plants are a large group of living things that use sunlight to make their own food.
- There are many, many different kinds of plants, including trees, vines and grasses.
- Plants have lots of different parts, for example stems, leaves and roots.
- Some trees lose their leaves in the winter (deciduous). Some keep their leaves through the year (evergreen).
- Some plants are 'flowering plants' - they grow flowers on them.

Growth from Seeds/Bulbs into Mature Plants



- Germination is the name for when a plant starts to grow. A plant is germinating when its seed begins to sprout.
- Inside a seed/bulb is the baby plant (an embryo). Seeds have a tough layer on the outside to protect the plant (the seed coat).
- Seeds and bulbs do not need sunlight in order to grow. They already have their own food store inside them!
- However, they do need the right conditions to grow. Normally, they need water, air and the right temperature. This can often be found in well-watered soil!

What Plants Need to Grow

Light



Plants need lots of sunlight to help them grow.

- Plants do not eat food. They instead use sunlight to make their own food.
- Too little light will leave plants weak.

Water and Nutrients



Like animals and humans, plants need water and nutrients to survive.

- Plants are able to get water from the soil through their roots.
- They can also catch water on their leaves.

Temperature



Plants need the temperature to be just right for them to grow properly.

- If it is too hot, they may burn and wilt. If it is too cold, they may freeze and die. This is why there are less plants at the poles and the deserts.

Space and Time

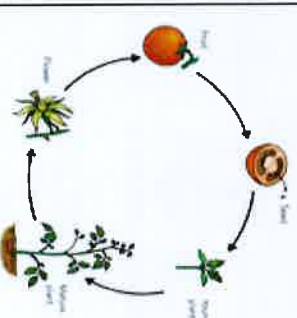


Plants need room for their roots and stems to be able to grow. Without enough room, they may not grow large enough.

- Plants also need time - it can take days, months or even years for them to grow.

Plant Life Cycle

Plants have a clear life cycle that helps them to keep reproducing:



Seeds/bulbs - Plants begin life as seeds or bulbs. They need soil, air and water to grow.

Seedling - Plants grow into young plants. They now need light, temperature, water, space and time to keep growing.

Flowering/Fruit - Plants grow flowers and fruits. These produce seeds. When the plant dies or is pollinated, the seeds find their way to the soil. The process starts again!

Smaller Plants

Dandelion - about 25 centimetres

Dwarf Evergreen Shrub - about 1 metre

Sunflower - 1-3 metres

Titan Arum Flower - up to 3.5 metres

Spruce (Christmas Tree) - up to 30 metres

Giant Redwood Tree - 100 metres +

Taller Plants



Use of EVERYDAY MATERIALS KNOWLEDGE ORGANISER



What you should already know...



- Materials are the substances that things are made from.
- We use lots of different materials every day, e.g. metal, plastic, wood, and glass.
- Different materials have certain properties, e.g. glass is see-through, metal is strong and often shiny, etc.
- Composites are made from two or more materials together.
- Some materials are used to make many things.

Development of Materials

John Dunlop

- John Dunlop is famous for developing the pneumatic (air-filled) tyre.
- He did this, at first, to improve the tyres on his son's bicycle!
- He used his understanding of rubber to fit it to a wooden disc. He then used an inflated tube of sheet rubber to blow up the tyre.



Charles Macintosh

- Charles Macintosh is best known for inventing the raincoat.
- He discovered a way in which rubber could be placed between two layers of cloth, to make it waterproof.
- His name lives on today – a raincoat is often called a Macintosh or Mac.



John MacAdam

- John MacAdam was the first person to think of tarmac roads.
- Roads used to be made from clay, earth, or chalk, but these materials were messy and not very smooth.
- He spread hot tarmac on a road, adding lime chippings & flattening.



Properties of Materials

Material	Image	Properties	What could it be used for?
Metal		-Metals are often strong, shiny, hard and long-lasting. -Metals can be hammered into different shapes. -Glass can be strong, but thin glass shatters. -Glass is transparent and waterproof. It can be made into different shapes.	-Metals can be made into things like pots and pans. -Metals can be stretched into wires and rods.
Glass		-Wood is hard and strong. -Wood is long-lasting and is a natural product. -Wood is flammable.	-Glass is most often used to make windows and glasses. -It is also used in making mirrors, table-tops and windcreens.
Wood		-Plastics can be tough or flexible and can be made into any shape. Plastics can be dyed different colours and can be made transparent.	-Wood is often used to build furniture, like benches and desks. -Wood can be used to build houses and cabins.
Plastic		-Rubber is extremely tough, but also very flexible. -Rubber is elastic and also waterproof. Rubber doesn't tear easily.	-Plastics can be used to make packaging, bottles and toys. -Plastics can be moulded into plates, knives and forks.
Rubber		-Bricks are very hard and strong. They are difficult to break. Bricks are thick and store heat well.	-Not including food and drinks, water is still used in many, many products. For example, it is used in making paints, toothpastes, shampoos and cement.
Brick		-Paper is often thin and can be made into lots of different shapes. Paper can be torn. It goes soggy when wet.	-Bricks are normally attached together with mortar and are used to make buildings. -They are also used for paving.
Paper		-Cardboard is often thin but is firmer and tougher than paper. Cardboard is more difficult to tear. It goes soggy when wet.	-Paper is normally used for writing. Paper is used in diaries, notebooks and for printing on. Paper is used for posters/displays.
Cardboard			-Cardboard is often turned into boxes and is then used for packaging items. It can be used for protection, e.g. protecting floors when painting.

Properties of Materials Vocabulary

- Hard Squashy Smooth Absorbent Bumpy Bouncy Dull Flexible Flammable Translucent Waterproof Firm Soft



ANIMALS including Humans KNOWLEDGE ORGANISER



What you should already know...



- Animals are living things which need food and water to live.
- Animals can be split into different groups – mammals, reptiles, birds, fish and amphibians. They have different structures to fit their needs.
- Some animals are carnivores (meat eaters), some are herbivores (eat plants) & some are omnivores (eat both).
- Animals use their senses to experience the world around them.

Reproduction



- All animals reproduce. This means that they have offspring (e.g. humans have babies).
- For example, mammals give birth to live young, whilst fish lay eggs.
- All of these offspring must receive the basic needs of animals (below on the left) to grow into adults.
- When they are fully grown, they can also reproduce. And so, life goes on!

Basic Needs of Animals

Water



- Animals need water to make sure that they stay hydrated.
- Many animals drink water to survive. Other animals (e.g. fish) live in the water.
- Some animals get their oxygen from the water. Humans are made up of 70% water.

Food



- Animals use food to get the energy & nutrients that they need.
- Animals eat plants (herbivores), other animals (carnivores), or both (omnivores).

Shelter



- Shelter provides safety from weather/ predators and basic things that an animal needs to survive.

Oxygen



- All animals (including humans) need oxygen to live.
- Oxygen exists in the air, in the soil, and even in the water. Fish breathe oxygen through gills.

Temperature



- Sunlight and heat are vitally important to all animals. This gives animals the energy that they need.
- Burrows, nests and dens are some examples.
- Some animals need more heat than others.

Staying Healthy

Exercise



- Humans (and many other animals) need to exercise. It builds our muscles and helps to pump blood around our body. Regular exercise makes us stronger and fitter.
- Exercise also helps to keep our weight down. When we are too heavy and have too much fat, it is much harder to move, and puts a strain on our bodies.

Eating a Balanced Diet



- It is important that humans eat a balanced diet with all of the right nutrients – this helps us to grow bigger, stronger and healthier!
- Eating a balanced diet includes having fruit & vegetables, starchy foods such as breads and pastas, meats and fish (and other alternatives) and foods containing fats.

Hygiene



- It is important to be hygienic. This includes regularly washing our hair and bodies, washing hands before eating and brushing our teeth.
- Being hygienic stops the spread of germs, which can cause diseases.

Animal Life Stages

Birth



Growth



Reproduction



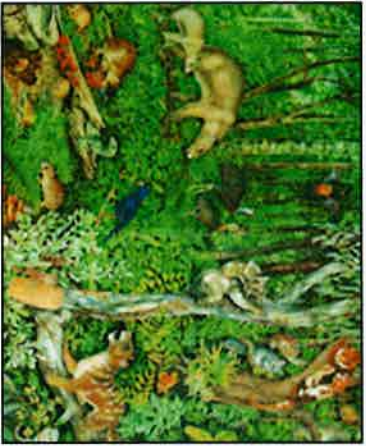
Death



LIVING THINGS and their habitats KNOWLEDGE ORGANISER



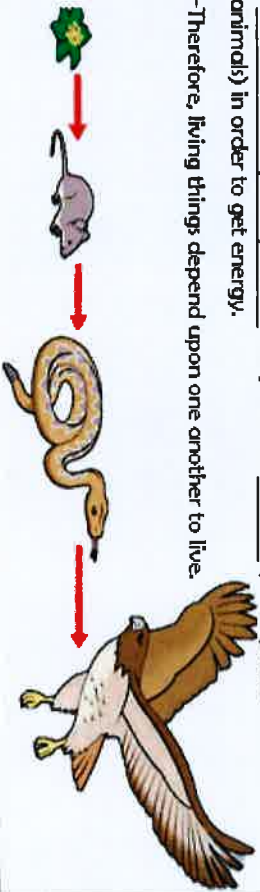
Overview



- All around us, there are some things that are alive, some things that are dead, and some things that have never been alive.
- All living things have certain characteristics that help to keep them alive and healthy.
- Living things live in habitats that suit them, and which provide for their basic needs.
- Living things depend on other living things in order to survive.

Food Chains

- Every living thing needs food in order to create energy. This process is called nutrition.
- Plants achieve nutrition by photosynthesising, using water, carbon dioxide and light.
- Animals cannot photosynthesise. They need to eat food (either plants or other animals) in order to get energy.
- Therefore, living things depend upon one another to live.



Characteristics of Living Things

M-R-S G-R-E-N

You can remember the seven features of living things by using the acronym MRS GREN.



M	Movement	Animals move in many different ways. Plants grow and turn towards light.
R	Respiration	Plants and animals use oxygen in the air to turn food into energy.
S	Sensitivity	Living things can detect changes in their surroundings.
G	Growth	Living things get bigger and grow.
R	Reproduction	Animals have young. Plants create seeds from which new plants grow.
E	Excretion	Living things get rid of things that they make but don't need.
N	Nutrition	Living things need food/nutrients for energy.

Habitats



- A habitat is a home environment for plants, animals, and other living things.
- Examples of habitats include:
 - Desert: Rainforest;
 - Woodlands: Ocean;
 - Meadow: Seashore.
- Micro-habitats are small, specific home environments, e.g. individual trees, a pond, under a rock, or a pile of logs.
- Habitats contain features that make them suitable to the things that live there, e.g. food, shelter, or temperature.
- Habitats can change over the year & over time, so some animals migrate.

Alive



Oak Tree



Fallen Leaves



Dead

Bone



Phone



Never Been Alive

Lamp Post



Year 2 : Summer 2 Knowledge Organiser

Science: Animals including humans



All living things **reproduce** and have **offspring**.

Some animals give birth to **live young**. Their offspring normally look like them when they are born.



Other animals have offspring which do not look like them, e.g. fish and amphibians.



Some animals lay eggs which hatch into live young. This young then develops into an **adult**. When these eggs hatch, some animals look like their adult, e.g. birds and reptiles.

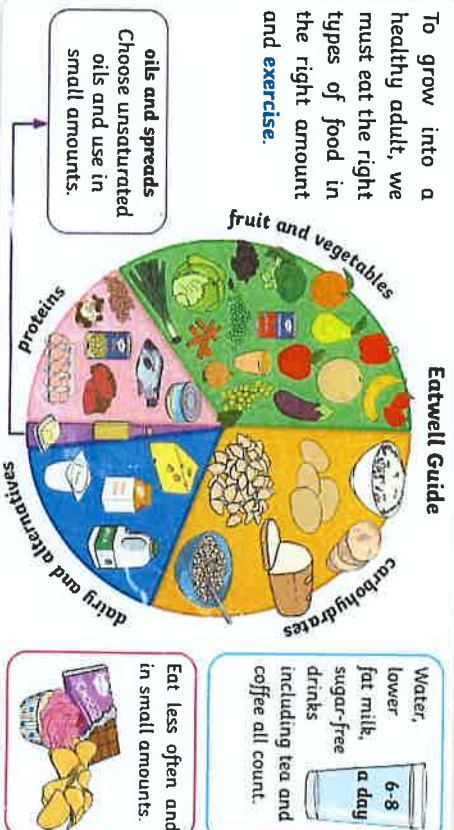


Key Vocabulary	
adult	A fully grown animal or plant.
develop	To grow and become stronger.
life cycle	The changes living things go through to become an adult.
offspring	The child of an animal.
reproduce	When living things make a new living thing of the same kind.
young	Offspring that has not reached adulthood.
live young	Offspring that has not hatched from an egg.

Important facts to know by the end of the healthy living topic:

- Know that animals, including humans, have young animals that look like them.
- Know that the babies will grow into adults.
- Know what humans need to survive (including food and water).
- Know what animals need to survive.
- Know why it is important to exercise.
- Know why it is important to eat the right amounts of food.
- Know why it is important to keep clean and wash regularly.

To grow into a healthy adult, we must eat the right types of food in the right amount and **exercise**.



To stop illness and infections spreading, we must be hygienic and keep ourselves clean.



To stay alive, all animals have 3 basic needs:



Key Vocabulary	
dehydrate	To lose water (dry out).
diet	The food and water that an animal needs.
disease	Illness or sickness.
energy	The power needed to carry out a task.
exercise	A physical activity to keep your body fit.
germs	Bugs that cause disease and illness.
heart rate	The number of times a heart beats in one minute.
hygiene	How clean something is (to stay healthy and stop disease and illness spreading).
nutrition	Food needed to live.
pulse	The beating of the heart that can be felt in your neck and wrist.

