Year 1 Science Autumn 1: Everyday Materials

Knowledge	
Objects are things that you can touch or see. Objects are made of materials, and there are many different types: 	
Which materials are natural and which are man-made?	**Pattern Seeking** Some everyday materials are natural, while others are man-made. Natural materials are materials which are found in nature, whilst man-made materials are materials which have been produced by humans. 
What properties can I use to describe materials?	**Pattern Seeking** The properties of a material tell you different things about them and how we experience them using our senses. What do you they look like? How do they feel? Often, we can use opposites to compare materials: do they feel hard or soft? Do they look shiny or dull? Are they opaque or transparent? Can you think of any other pairs of properties to help you describe materials? 
Which materials stretch the most when masses are added to them?	**Comparative Testing** If a material is stretchy, then it is able to bend from its original shape into something new when a mass is added to it, but after the mass is taken away, it will return to the shape it started as. The opposite of a stretchy material would be a stiff material, because it wouldn't bend or stretch no matter how much weight was added to it. If you were given a piece of plastic, a ball of wool, a piece of elastic, a reel of cotton and a piece of rubber, how could you fairly investigate which material stretches the most? What would you have to think about to make sure you were taking part in a fair test?
Which materials will float and which will sink?	**Identifying and Classifying** Every material is made up of tiny molecules, and the closer they are packed together inside an object, the more likely that object is to sink. This is called denseness: if an object is less dense, then it will float. If you looked at all of the different items in your pencil case, which ones do you think would float and which ones do you think would sink? Why? Is there a way you could test if you were right or not inside the classroom or out on the playground?
Which materials are the best absorbers?	**Observing Over Time** If a material is absorbent, then it will allow water to be soaked up into it, so that when you squeeze it, the water will pour out! If you were given a toilet roll, a piece of cotton wool, a sponge, a newapaper and a hand towel, how would you know which material absorbed water the best? Would there be an accurate way of measuring this? What do you think will happen? Why?

We need to choose a material to make an umbrella: which materials are waterproof?	**Identifying and Classifying**  If a material is waterproof, then it will not allow water to pass through it. Umbrellas have to be waterproof for them to work properly in the rain, but if you were given a tissue, a plastic bag, a piece of kitchen roll, a piece of cardboard and some fabric, how would you know which materials were waterproof and which ones would let the water through? **Remember, it is not a sensible idea to put a plastic bag over your head to test whether it is waterproof or not!**
How did Charles Macintosh adapt his coats and how has this helped us in the future?	 **Ideas Over Time** Charles Macintosh (1766-1843) https://www.youtube.com/watch?v=5fcCo0G3Z_w Scottish chemist and inventor.
Which materials can be recycled? Why is it important that we recycle substances?	**Research**  Recycling is very important for the world to survive and allow us to live the way we choose. If materials can be recycled, less man-made materials have to be made and less natural materials have to be taken from the Earth. Lots of people have recycling collections at home now, and can even take materials to recycling centres in the local area, but which materials can this be done with?
Is there a pattern in the types of materials that are used to make objects in a school? What properties do these materials have to make them suitable for their job?	**Pattern Seeking** Because different materials have different properties, they can be very useful at some things, but not at others. For example, having brick windows and glass floors might not be a safe idea! As you walk around school, inside and outside, what different materials can you find that objects are made from? Are they the best materials for each object, or could you suggest a better material? Why?

Vocabulary	
Absorbent	**Material** that soaks up liquid easily.
Bendy	An object that **bends** easily into a curved shape.
Bricks	Rectangular blocks of baked clay used for building walls, which are usually red or brown.
Dull	A colour or light that is not bright.
Elastic	A rubber **material** that **stretches** when you pull it and returns to its original size and shape when you let it go.
Fabrics	Cloth or other **material** produced by weaving together cotton, wool or other threads.
Foil	Sheets of **metal** as thin as paper.
Glass	A hard, **transparent material**.
Man-made	Things that are created by people.
Material	The matter from which something is made.
Metal	A hard substance such as iron, steel, gold or lead.
Natural	Things that exist in nature and are not made by people.
Opaque	A substance or **material** that you cannot see through.
Plastic	A **material** which is light in weight and does not break easily.
Rock	The hard substance which the Earth is made of.
Rough	Something that is uneven and not **smooth**.
Shiny	Things that are bright and reflect light.
Smooth	Something that has no **roughness**, lumps or holes.
Soft	Something that is not **rough** or hard.
Stiff	Something that is firm and does not **bend** easily.
Stretchy	Something that is slightly **elastic**.

Transparent	A substance or **material** that you can see through.
Waterproof	Something that does not let water pass through it.
Wood	The **material** which forms the trunks and branches of trees.

What should I already know? (KS1)	Potential Cross-curricular Links (KS1)
• **Key Stage 1: Working scientifically [NC 2014, p113]**.	 **Schools Then and Now**  **Our School**

Statutory requirements

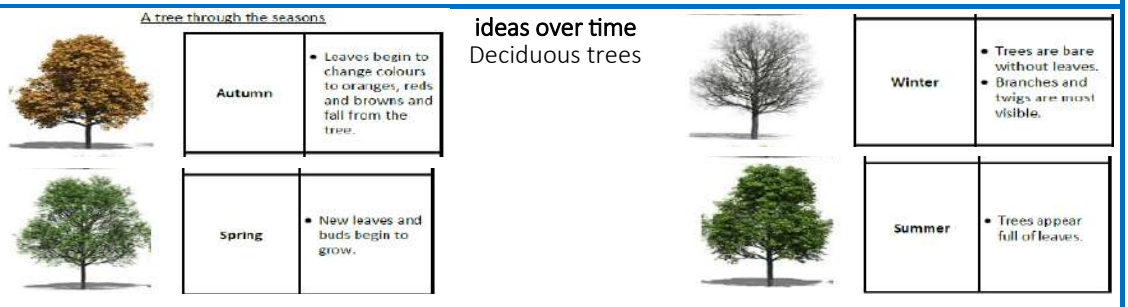
Pupils should be taught to:

- distinguish between an object and the material from which it is made
- identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock
- describe the simple physical properties of a variety of everyday materials
- compare and group together a variety of everyday materials on the basis of their simple physical properties.

Priory Primary School Knowledge Organiser

Science	Seasonal Change	Year 1	Autumn 2	Physics

Knowledge

What is a season?	**Identifying and classifying** • **Autumn**: September, October, November • **Winter:** December, January, February • **Spring:** March, April, May • **Summer:** June, July, August
What signs of Autumn can you spot?	**Observing** • The temperature begins to fall, meaning it gets colder. • The leaves on deciduous trees change colour and begin to fall on the ground. • The days get shorter and the nights get longer. • Things people do—rake up leaves, pick berries, collect conkers. • Clothes you wear include t-shirts and shorts on sunny and warmer days and woolly hats, scarves, gloves on colder days the closer it gets to winter.
What weather do we associate with the winter season?	**Pattern seeking** • As the seasons change from Autumn to winter it gets colder still because the temperature has fallen. • It can freeze over night and in the mornings there ay be ice and frost • The days get shorter and nights get longer. Winter has the shortest days and the longest nights of all the seasons. • The weather maybe windy, rainy or chilly. Sometimes it also snows.
In which season does it rain the most and how does the daily amount change?	**Comparative testing** • Go outside and check the weather. Collate the results of what is happening over the week. Children to explain what they have found out. • Each day collect rain water and measure place results in a chart.
How does the weather change?	**Comparative** • The weather maybe slightly sunny, windy or rainy, more clouds in the sky during autumn compare sun - wind - rainy days.
Which animals hibernate, or migrate in winter months?	**Research** Match the animals that hibernate and migrate.
How do weather forecasters know what the weather will	**Research** Holly Green - meteorologist
How does day length vary throughout the year ?	**Comparative** Analyse simple graphs that show how day light changes throughout the seasons.
How does a tree change over the year?	 **ideas over time** Deciduous trees
What do you notice about the tempera-ture every day.	**Comparative** Measure the temperature every day—what do you notice about the difference in temperature from the start and end of the unit?
How would you group these things based on which season you are most likely to see them in?	**Identifying and classifying** Match the events to the seasons what s the weather like in these seasons? For example: Christmas day, Halloween, bonfire night, Diwali, valentines day, News years eve

Priory Primary School Knowledge Organiser

Science	Seasonal Change	Year 1	Autumn 2	Physics

Vocabulary	
Autumn	The season between summer and winter. When the weather becomes colder and eaves fall off trees.
chilly	Very cold
cold	If it is cold the temperature is very low.
Day length	The amount of tie there is daylight.
Day light	The natural light there is during the day before it gets dark.
deciduous	A tree that loses its leaves in the Autumn every year.
freeze	When it freezes outside, the temperature falls between 0 degrees.
frost	The ground becomes covered in ice crystals.
hibernate	Spending the winter in a deep sleep.
ice	frozen water
migrate	When animals move at a particular season from one part of the world to another .
Months	One of the 12 time periods the year is divided into.
Nature	Animals, plants, and other things that aren't man made.
Rain	Water that falls from the clouds I small drops.
Season	The main times of year that can be divided and have their own typical weather.
Snow	Soft bits of frozen water that fall from the sky in cold weather.
Spring	The season between winter and summer when the weather becomes warmer and plants start to grow.
Summer	The season between spring and autumn when the weather is usually warm or hot.
Sunny	When the sun is shining bright.
Temperature	A measure of how hot or cold something is.
Warm	When there is some heat but not enough to be hot.
Weather	What the sky and air are like such as cold or sunny.
Windy	When the wind is blowing.
Winter	The season between autumn and spring. The weather is usually cold,.

Seasonal changes

Statutory requirements

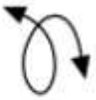
Pupils should be taught to:

- observe changes across the four seasons
- observe and describe weather associated with the seasons and how day length varies.

Priory Primary School

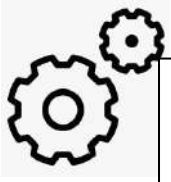
Year 2 Science Autumn: Uses of Everyday Materials

Knowledge	
What are materials used for?	**Research**  Materials are used for different purposes based on their properties. For example, wood is used to make furniture and floors, metal can be used to make coins, cans, cars and cutlery, and glass can be used to make windows. Can you think of any other important objects at home or at school that are made of different materials for a particular reason?
What properties of materials make them suitable for a particular use?	**Identifying and Classifying**  The properties of materials are the key reason why they are used to make particular objects: • Glass can be used for windows because it is transparent and allows people to see through it; • In the classroom, rulers can be made from wood, plastic or rubber because these materials are smooth and can be cut straight; • Spoons are mainly made from metal, because this makes them waterproof and easy to clean. However, they can also be made from plastic for children because plastic is light and it cannot hurt children's growing teeth.
Which material would be best for the roof of the little pig's house?	 **Comparative Testing** The basic purpose of a roof is to keep the inside of a house warm and dry. Because of this it has to be strong – it will be heavy and would collapse if it was made from the wrong materials. Think about the story of the Three Little Pigs – whose house was the strongest? Why? Could you do an investigation to test if this is true? How will you know if the story was right or not?
How have the materials that humans use for tools changed since the Stone Age?	**Ideas Over Time**  The Stone Age was named after the material used to make tools and weapons for the people who lived at that time: stone is a natural material and was available in large amounts. Following that came the Bronze Age and Iron Age, which got their names in the same way. As time has gone on, people have found ways of using natural materials to help make stronger, man-made ones. If you think about what you might find in a toolbox today, what are the tools made of? What properties do the materials have that make them suitable as tools? Why is this important?
How does squashing change a shape?	**Pattern Seeking**  https://www.stem.org.uk/resources/elibrary/resource/416941/everyday-materials-squash-bend-twist-and-stretch If an object is squashed, then it will usually change the shape of that object permanently because of the amount of force and pressure used to crush it. The material the object is made from will be squashed, but not broken. Think about the different materials you have investigated – which ones do you think could be squashed? Why do you think this? What types of object could be made from these materials that might need to be squashed? Why?

What happens when you bend items?	**Observing Over Time**  bend https://www.stem.org.uk/resources/elibrary/resource/416941/everyday-materials-squash-bend-twist-and-stretch If an object is bent, then it will usually change the shape of that object permanently because of the amount of force used to bend it and create the curve that will appear in the middle. Like with squashing, the material the object is made from will be bent, but not broken. Think about the different materials you have investigated – which ones do you think could be made to bend? Why do you think this? What types of object could be made from these materials that might need to be bent? Why?
How are twisting and stretching an object different?	**Comparative Testing**  twist  stretch https://www.stem.org.uk/resources/elibrary/resource/416941/everyday-materials-squash-bend-twist-and-stretch Twisting and stretching can both change the shape of an object, but the end result is often very different. An object that has twisted will often remain twisted forever, but an object made from stretchy material should be able to return to its original shape after it's been stretched. Using this information and a range of different materials, is there a way you can investigate this in the classroom to compare the effects of twisting and stretching? How will you make sure that you are testing fairly? How are you going to record your results?
How have road surfaces changed over time? Who is John McAdam and how did he contribute to this change?	 **Observing Over Time** John Loudon McAdam (1756-1836) https://www.youtube.com/watch?v=zDdeCU3ohoY Scottish civil engineer and road-builder.
How did John Dunlop revolutionise tyres?	**Research** John Boyd Dunlop (1840-1921) https://www.youtube.com/watch?v=T_EZ3QuYYXU Scottish inventor and veterinary surgeon. 

Vocabulary	
Absorbent	**Material** that soaks up liquid easily.
Bendy	An object that **bends** easily into a curved shape.
Bricks	Rectangular blocks of baked clay used for building walls, which are usually red or brown.
Dull	A colour or light that is not bright.
Elastic	A rubber **material** that **stretches** when you pull it and returns to its original size and shape when you let it go.
Fabrics	Cloth or other **material** produced by weaving together cotton, wool or other threads.
Foil	Sheets of **metal** as thin as paper.
Glass	A hard, **transparent material**.
Man-made	Things that are created by people.
Metal	A hard substance such as iron, steel, gold or lead.
Natural	Things that exist in nature and are not made by people.
Opaque	A substance or **material** that you cannot see through.
Plastic	A **material** which is light in weight and does not break easily.
Process	A series of actions used to produce something or reach a goal.
Properties	The qualities or features that belong to something and make it recognisable.
Purpose	The reason for which something is made or done.

Recyclable	Waste or materials which can be **processed** and used again.
Rock	The hard substance which the Earth is made of.
Rough	Something that is uneven and not **smooth**.
Shiny	Things that are bright and reflect light.
Smooth	Something that has no **roughness**, lumps or holes.
Soft	Something that is not **rough** or hard.
Squash	To be pressed or crushed with such force that something loses its shape.
Stiff	Something that is firm and does not **bend** easily.
Stretchy	Something that is slightly **elastic**.
Suitable	To be right or acceptable for a particular **purpose** or occasion.
Transparent	A substance or **material** that you can see through.
Twist	To turn something into a spiral shape.
Unsuitable	To not be right or acceptable for a particular **purpose** or occasion.
Waterproof	Something that does not let water pass through it.
Wood	The **material** which forms the trunks and branches of trees.

What should I already know? (KS1)	Potential Cross-curricular Links (KS1)
• **Key Stage 1: Working scientifically [NC 2014, p113]**; • **Y1 Everyday materials:** *distinguish between an object and the material from which it is made;* • **Y1 Everyday materials:** *identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock;* • **Y1 Everyday materials:** *describe the simple physical properties of a variety of everyday materials;* • **Y1 Everyday materials:** *compare and group together a variety of everyday materials on the basis of their simple physical properties.*	 **Toys Then and Now:** Plasticine, etc.  **Chair Designer/ Slides and Levers/ Wheels and Axles:** Choosing suitable materials

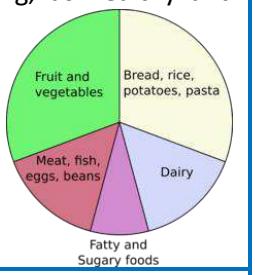
Statutory requirements

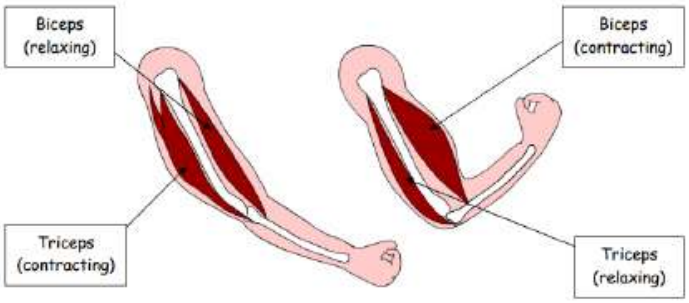
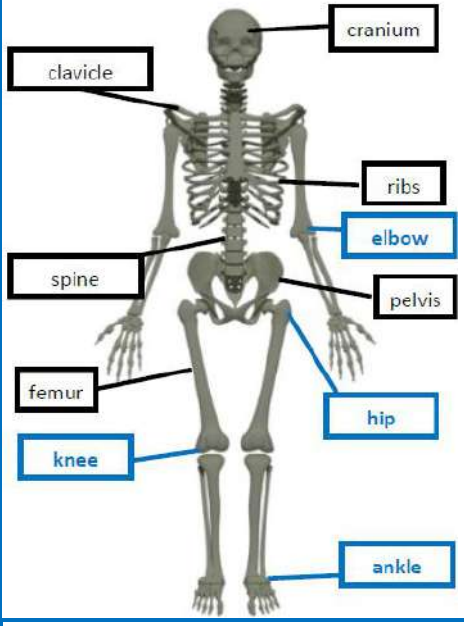
Pupils should be taught to:

- identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses
- find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.

Priory Primary School

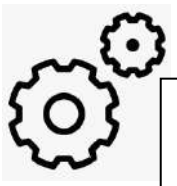
Year 3 Science Autumn 1: Animals, including Humans

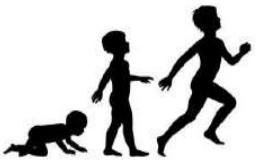
Knowledge	
How can we group the food that we eat?	**Identifying and Classifying** There are five main types of food group, and eating a balanced amount of all of them has an important part to play in making, and keeping, us healthy and active people: • Fruit and vegetables; • Bread, rice, potatoes, pasta and other starchy foods; • Milk and dairy; • Oils and spreads; • Meat, fish, eggs, beans and other non-dairy sources of protein. 
What is the function of each food group and why are they essential to our survival?	**Identifying and Classifying** There are seven different types of nutrients that people need in a balanced diet, and each nutrient provides something different to keep the body healthy. Often, these nutrients can be found in more than one food group – can you work out which ones from the list below? • Protein helps your body to grow and repair itself. It can be found in foods such as red meat, yoghurt and beans; • Carbohydrates give you energy, and are found in foods like bread, potatoes and pasta; • Fats also give you energy, although fats can be healthy and unhealthy. Healthy fats are often found in nuts, oils and avocados; • Vitamins help to keep your body healthy: high vitamin foods include oranges, carrots and nuts; • Minerals also help to keep the body healthy: foods high in minerals include milk, sweetcorn and spinach; • Fibre helps you to digest the food you have eaten, and some examples of high fibre foods are wholegrain bread, cereals and lentils; • Water helps to move all of the nutrients in your body and get rid of any waste that you don't need. Foods with a high water content include celery, cucumber and tomatoes.
How do the diets of different animals vary?	**Comparative Testing** As a basic way of telling them apart, an animal's diet depends upon whether they are a carnivore, a herbivore or an omnivore. From there, animals and humans will eat different foods across as many different food groups as possible to give them a balanced diet. Is there a way of comparing the diets of wild animals and the diets of the different pets people in your class keep at home? What about the differences between you and your classmates, or your parents and carers at home? Are some people vegetarian or vegan? Are some people allergic to different types of food? How do they keep themselves as healthy as possible? Is there a way you could investigate some of these questions, or some of your own, fairly and explain what you did and what your results were?
What food groups do we have in our lunch boxes? Are they all balanced? If not, what food groups are missing and what foods could we add in/replace?	**Pattern Seeking** On your tables, have a look inside the lunchboxes of the children who have packed lunches. How many of the different food groups can you identify from each person's lunch? Which food groups are missing, if any? Can you suggest some extra foods to add to the lunchbox so that every food group is inside it? Do you need to take any foods out? Why might you have to do this? 
How can we group animals according to their skeleton?	**Identifying and Classifying** Vertebrates are animals that have a backbone. These types of skeleton are called endoskeletons, which means that the skeleton is on the inside of the body. As the body grows, so does the endoskeleton.

	 When the skeleton exists on the outside of the body, it is called an exoskeleton. An exoskeleton is a covering that supports and protects animals. These exoskeletons have to be regularly shed so that a new skeleton can be grown.  Can you think of any other examples of animals with endoskeletons and exoskeletons?
How do the muscles in our body assist the bones in the skeleton?	**Identifying and Classifying**  Muscles and bones in the body work together to allow us to move. Joints are formed where bones meet, and tendons connect our muscles to our bones, allowing them to contract and relax to create movement. For example, if you place your elbow on a desk and lift your arm up, muscles in your upper arm (biceps) contract whilst muscles behind the upper arm (triceps) relax. The muscles work together and in opposition, allowing your arm to move.
What organs do our bones protect?	**Research** There are a variety of different organs all over our bodies, each of them with an important job to do that keeps our body working properly. They are protected by the skeleton, meaning that most of them are inside the skull or the torso. Can you identify where each organ is and how it helps to keep the body healthy?
What would happen if humans did not have a skeleton?	 **Research** The three most important things a skeleton does are to provide support and shape to the body, allow movement through the joints and protect our organs. **bones** **joints**
Do male humans have larger skulls than those of female	**Observing Over Time** To find out the size of someone's skull, you can measure the circumference of

humans?	their head with a tape measure. If your class was to split up into boys and girls and you simply looked without taking any measurements, which group of people do you think would have the larger skulls? Why? How are you going to record your results when you take your measurements?
How have the discoveries of Wilhelm Röntgen helped to develop and improve medicine?	**Ideas Over Time** Wilhelm Röntgen (1845-1923) https://www.youtube.com/watch?v=OCCQG_iJkMw https://www.youtube.com/watch?v=HRNm9QWkDyY German mechanical engineer and physicist. 

Vocabulary	
Backbone	The column of small linked **bones** down the middle of your back. Your **backbone** is also known as your spine.
Balanced diet	A variety of food that you regularly eat.
Bones	The hard parts inside your body which form your **skeleton**.
Contract	To make smaller by drawing together, shrinking or making tighter.
Diet	The type and range of food that you regularly eat.
Disease	An illness which affects people, animals or plants.
Elbow	The bend or **joint** between the upper arm and the lower arm.
Endoskeleton	The internal **skeleton** of an animal, especially the bony **skeleton** of **vertebrates**.
Energy	The ability and strength to do physical things.
Exoskeleton	The **protective** or **supporting** structure covering the outside of the body of many animals.
Healthy	To be well and not suffering from any illness.
Hygiene	Keeping yourself and your surroundings clean, especially in order to prevent illness or the spread of **disease**.
Joints	The junctions between two or more **bones**.
Muscles	Parts of the inside of the body which connect two **bones** and which you use when you make a movement.
Nutrients	Substances that help plants and animals to grow.
Nutrition	The process of taking food into the body and absorbing the **nutrients** in those foods.
Organs	Parts of your body that have a particular purpose.
Protect	To prevent someone or something from being harmed or damaged.
Relax	When a part of the body becomes less stiff or firm.
Skeleton	The framework of **bones** in your body.
Starchy	Foods that contain a lot of starch (a **nutrient** which gives you **energy**).
Support	To hold something up.
Tendons	Strong cords in a person's body which join a **muscle** to a **bone**.
Torso	The human body apart from the head, neck, arms and legs.
Vertebrate	A creature which has a **backbone**, or spine.

What should I already know? (KS1/KS2)	Potential Cross-curricular Links (KS1/KS2)
• **Lower Key Stage 2: Working scientifically [NC 2014, p120]**; • **Y1 Animals, including humans:** *describe and compare the structure of a variety of common animals […];* • **Y1 Animals, including humans:** *identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense;* • **Y2 Living things and their habitats:** *describe how animals obtain their food from plants and other animals, […], and identify and name different sources*	 **Preparing Fruit and Vegetables** **Mediterranean/UK Food:** Balanced Diet

of food; • **Y2 Animals, including humans:** *find out about and describe the basic needs of animals, including humans, for survival (water, food and air);* • **Y2 Animals, including humans:** *describe the importance for humans of […], eating the right amounts of different types of food, and hygiene.*	 **Healthy Me:** Balanced Diet

Statutory requirements

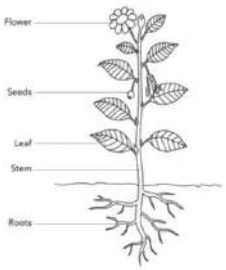
Pupils should be taught to:

- identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat
- identify that humans and some other animals have skeletons and muscles for support, protection and movement.

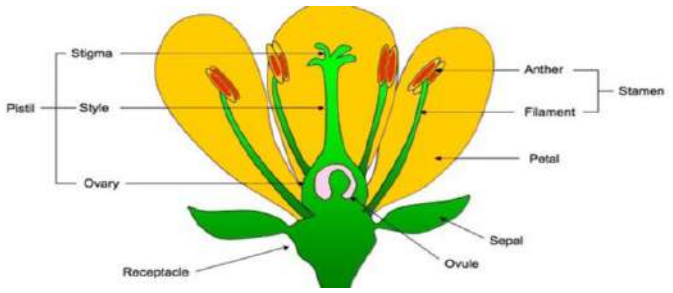
Priory Primary School Knowledge Organiser

Science	Plants	Year 3	Autumn 2	Biology

Knowledge

What are the functions of a flower? 	**Identifying and classifying** • Petals - usually bright to attract bees and insects so they can collect pollen to make seeds. • Seeds - able to grow and make new plants. This is called germination. • Leaves - use carbon dioxide and sunlight to make food for the plant. • Stem - carries water and nutrients from the roots to the rest of the plant. Leaves use this water to make food. • Stem - holds the plant upright so the sunlight can reach it easier. • Roots - anchor the plant in the soil. Absorbs water and nutrients from the soil for the stem to carry to the rest of the plant.
What do plants need to grow?	**Research** • Air • Water • Sunlight • Nutrients • Room to grow • Suitable temperature The amount of these may vary you could discuss that cacti needs less water than other plants.
What factors effect the growth of plants?	**Comparative** Compare the effect of different factors in plant growth (e.g. the amount of water, light and fertiliser) Discuss what would make this a fair test.
How is water transported with in plants	**Observing over time** • Water is absorbed from the soil by the roots. • It is then transported from the roots to the stem and then to the rest of the plant. Place white carnations in dyed water to observe how plants transports water.
How do flowers help in the life cycle of flowering plants?	**Observing over time** • The flowers job is to create seeds so that new plants can grow. • Pollination occurs when pollen from the anther is transferred to the stigma by bees and other insects. • Pollen travels down and meets the ovule when this happens seeds are formed this is called fertilisation. • Seeds are then dispersed so the germination can begin again. Discover how seeds are formed - Observe plant lifecycles
How are seeds dispersed?	**Research** Dissect fruits / flowers to observe their structure and use this to explain how seeds are dispersed. • Wind (helicopter seeds, dandelion) • Explosion (poppy) • Water (coconut) • Animals (black berry / cherry)
How are plants fertilised?	**Identifying and classifying** Dissect a flower and identify each of the different parts that help with fertilisation.
What colour flowers do pollinating insects prefer?	**Pattern seeking** Go to an area that has flowers and children to watch / record which flowers are visited.

Diagrams, Images and Symbols



Priory Primary School Knowledge Organiser

Science	Plants	Year 3	Autumn 2	Biology

Vocabulary	
Absorb	Soak up or take in.
anther	The part of a stamen that produces and releases the pollen.
Carbon dioxide	A gas produced by animals and people breathing out.
Climate zone	Sections of the earth that are divided according to the climate. There are 3 main climate zones polar, temperate and tropical.
deciduous	Trees that lose their leaves in the autumn every year.
dispersed	Scattered, separated or spread through a large area.
dissect	To carefully cut something up in order to examine it.
Ever green	A tree or bush which has green leaves all year round
Fertilisation	In plants where pollen meets the ovule to form a seed.
flower	The part of plant that is often brightly coloured and grows at the end of the stem .
Fruit	Something that grows on a tree or a bush containing seeds or a stone covered by a substance you can eat.
Germination	If a seed germinates it starts to grow
Healthy	Well and not suffering from illness.
lifecycle	The series of changes that an animal or plant passes through from the beginning of its life until its death.
Nutrients	Substances that help plants and animas to grow.
Ovule	A small egg.
pollen	A fine powder produced by flowers. It fertilisers other flowers of the same species so that they produce seeds.
Pollination	To pollinate a plant or tree means to fertilise it with pollen. This is often done by insects.
roots	The parts of a plant that grow under the ground.
Stigma	The top of the centre part of the flower which takes in pollen.
Vegetation	Plants trees and flowers.
Wild	Animals or plants that live or grow in natural surroundings and not looked after by people.

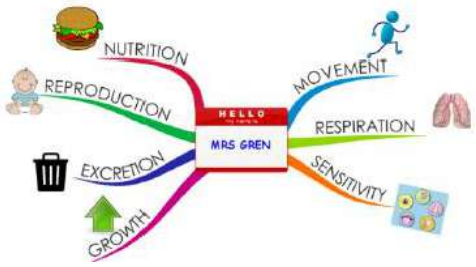
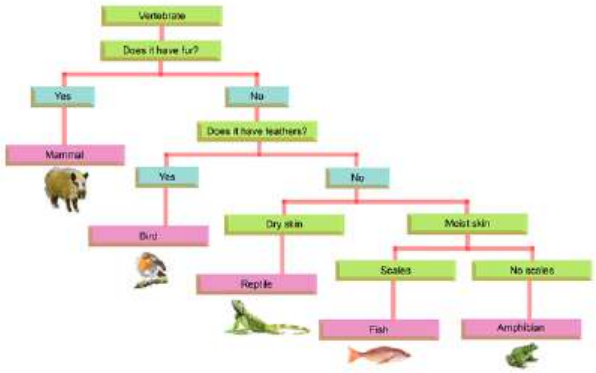
Plants

Statutory requirements

Pupils should be taught to:

- identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers
- explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant
- investigate the way in which water is transported within plants
- explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.

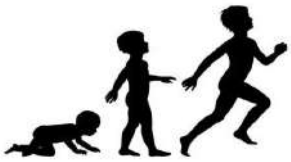
Year 4 Science Autumn 1: Living Things and their Habitats

Knowledge	
What are the 7 characteristics of living things?	**Identifying and Classifying** All living things, which can also be called organisms, have to do certain things to stay alive, which are known as life processes. There are seven life processes in total, and we can use the acronym MRS GREN to help us remember them: **M**ovement, **R**espiration, **S**ensitivity, **G**rowth, **R**eproduction, **E**xcretion and **N**utrition. 
How do we know an animal is a mammal? *How can you group fish, amphibians, birds, reptiles and mammals?*	**Comparative Testing** Living things can be grouped according to different criteria (where they live, what type of organism they are, what features they have, etc.) For example, we know that a dog is a mammal because it has fur, is warm blooded and has lungs to breathe air. We can also do this on a larger scale: being a vertebrate is one of the main criteria we can use to identify a fish, amphibian, bird, reptile or mammal. What other key features can you think of that could be used to identify different animals or groups of animals? If you were to walk around Dudley Zoo, would you be able to group every animal? Which features would be the best to use? Why?
How can different varieties of animals be identified from their characteristics? **How can we classify different plants/grasses?**	 **Comparative Testing** **Identifying and Classifying** A classification key is a tool that is used to group living things to help us identify them. Using Yes/No questions and a layout like a flowchart, a plant or animal's characteristics can be used to identify its variety, or even the individual living thing. For example, whether a plant is flowering or non-flowering would be a good question to use at the start of a classification key for plants and grasses. Can you think of any suitable questions that could be used next? What makes them suitable?
Can we use a classification key to identify the types of tree on the school site?	**Observing Over Time** Take a walk around the school site, from the main gate though forest school and around the playground. How many trees can you see? Where are they? Look more closely – what features do they have that might be different? For example, are their leaves the same shape, or are their trunks the same thickness? How could you write down your observations in the form of Yes/No questions to use in a classification key?
How does the variety of invertebrates in forest school change over the year?	**Observing Over Time** Habitats can change throughout the year and this can have an effect on the plants and animals that live there. As the seasons change, what differences can you see in the forest school environment? Which invertebrates (or minibeasts) can you find? What does their habitat, or microhabitat, look like during each season? Are the same varieties visible throughout the year? Remember it is important not to harm any minibeasts or damage their habitats/microhabitats whilst observing them.

How can human action have an impact on living things?	**Pattern Seeking**  Humans can have both positive and negative effects on our environment. For example, nature reserves and ecological parks that allow plants and wildlife to live freely are very helpful and positive choices for the environment. On the other hand, human actions such as disposing of our plastic waste in the oceans causes lasting damage and harm to sea creatures and the environment in which they live. What other human choices and behaviours can you think of that have an impact on living things? Are their effects positive or negative? Why?
How has the increased use of transport had an impact on the environment?	**Pattern Seeking** Urban development means that the places that human beings live and work in grow and change according to the population and their needs. This includes having transport networks that can be used by lots of people at one time, such as roads and railways, or more specialised networks such as canals and airports. Think about what is needed to build, expand and look after the transport networks that human beings use. How does the environment change? What happens to the creatures that live there and their habitats? Is there anything that we can do in our daily lives to help try and balance some of the negative effects with more positive ones?
Why do humans deliberately choose to cut down forests? **Why has deforestation become more of an issue over time?**	**Ideas Over Time**  For thousands of years, humans have used the forests and other natural resources to help them survive. As the population has grown, so has the need for these resources, which means that the rate of deforestation has increased. A bigger population also means more places to live and settle are needed, which leads to quicker urban development around the world. Are there any other reasons that deforestation might be taking place? Think about the tropical rainforests and deforestation there – what might be the global impact if we were to lose some, most or all of our rainforests?
Who is Greta Thunberg and what does she campaign for?	**Research** Greta Thunberg (2003-) https://www.youtube.com/watch?v=-Q0xUXo2zEY Swedish environmental activist. 

Vocabulary	
Biomes	A natural area of **vegetation** and animals.
Carnivore	An animal that eats meat.
Classification key	A system which divides things into groups or types.
Criteria	A factor on which something is judged.
Deciduous	Trees that lose leaves in the autumn every year.
Environment	All the circumstances, people, things, and events around a living thing that influences their life.
Evergreen	A tree or bush which has green leaves all the year round.
Excretion	The process of eliminating waste from the body.
Food chain	A series of living things which are linked to each other: each living thing feeds on the one next to it in the series.
Habitat	The natural **environment** in which an animal or plant normally lives or grows.
Herbivore	An animal that only eats plants.
Invertebrate	A creature that does not have a spine, such as an insect, a worm or an octopus.

Life processes	The seven different processes that tell us that a living thing is alive.
Microhabitat	A small part of the **environment** that supports a **habitat**, such as a fallen log in a forest.
Minibeast	A small **invertebrate** animal such as an insect or spider.
Nutrition	The process of taking food into the body and absorbing the nutrients in those foods.
Omnivore	A person or animal that eats all kinds of food, including both meat and plants.
Organism	A living thing.
Reproduction	When an animal or plant produces one or more individuals similar to itself.
Respiration	Process of respiring or breathing by inhaling and exhaling air.
Sensitivity	How a living thing responds to the external **environment**.
Urban	Belonging to, or relating to, a town or city.
Vegetation	Plants, trees and flowers.
Vertebrate	A creature which has a spine.

What should I already know? (KS2)	Potential Cross-curricular Links (KS2)
• **Lower Key Stage 2: Working scientifically [NC 2014, p120]**; • **Y3 Plants:** *explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant;* • **Y3 Animals, including humans:** *identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat;* • **Y3 Animals, including humans:** *identify that humans and some other animals have skeletons and muscles for support, protection and movement.*	 **Rainforests:** Deforestation **Europe Invaders and Settlers:** Natural resources **UK Human and Physical Features:** Urbanisation and land usage  **Healthy Me:** Healthy food choices **Changing Me:** Reproduction  **Anglo Saxon and Scots:** Natural resources (deforestation)  **Search technologies:** Research

Statutory requirements

Pupils should be taught to:

- recognise that living things can be grouped in a variety of ways
- explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment
- recognise that environments can change and that this can sometimes pose dangers to living things.

Priory Primary School Knowledge Organiser

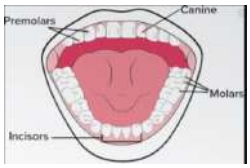
Science	Animals Including Humans	Year 4	Autumn 2	Biology

Knowledge

What are the different names of teeth and their functions?

Identifying and classifying

- **Canines** - pointed for tearing and ripping food. These are usually Used when chewing meet.
- **Incisors -** are shovel shaped and help bite lumps out of and cutting food.
- **Premolars and Molars** - are flat and they grind and crush food.



How do we look after our teeth?

Research

Humans looks after their teeth by flossing, brushing and ensuring that they do not eat foods high in sugar. Not looking after teeth can lead to an increase in plaque and tooth decay.

How do carnivore and herbivore teeth differ?

Comparative

Look at a variety of different carnivores and herbivores children to compare the differences. Suggesting reasons for these differences based on their knowledge of the food they eat and the types of teeth they can identify.

Who's Teeth?

Classifying and identifying

Children to have a variety of animals teeth - herbivores and carnivores. They need to classify the teeth.
Explaining why they have classified them.

How does an egg shell/ tooth/ chicken bone change when it is left in cola?

Observing over time

What happens observe and record findings.
Explain what they have found out.
Give reasons.

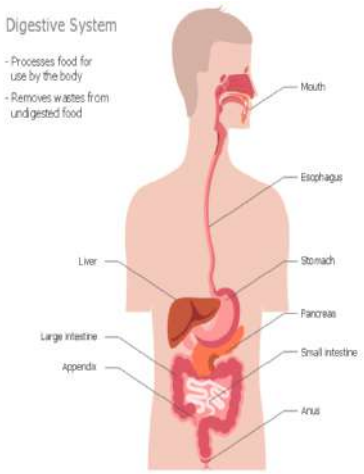
What are the names for all the organs involved in the digestive system? What does each of the organs do?

Identifying and classifying

- The smell of food triggers saliva to be produced.
- **tongue** pushes the food around while you chew with your teeth. When you're ready to swallow, and pushes a tiny bit of mushed-up food towards your throat.
- The digestive system begins with the mouth and teeth where food is ingested and chewed.
- Saliva is mixed with the food which helps to break it up.
- When the food is small enough to be swallowed, it is pushed down the oesophagus by muscles to the stomach.
- In the stomach, food is mixed further.
- The mixed food is then sent to the small intestine which absorbs nutrients from the food.

any left over broken food then moves on to the large intestine.

- The food minus the nutrients arrives in the rectum where muscles turn it into faeces. It is stored here until it is pushed out by the anus. This is called excretion.



Can you classify the organisms in your food chain and web as consumers, predators, prey, omnivores, carnivores and herbivores?

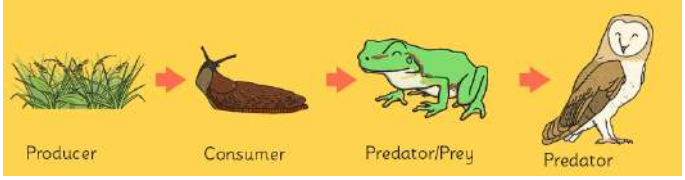
Identifying and Classifying

Give children food chains to look at and identify and classify the animals to consumers, predators, prey
Or
Omnivores, carnivores, herbivores.

Who eats who in each habitat?

Comparison

Construct and interpret different food chains
Producer, consumer, predator, prey



Priory Primary School	Priory Primary School Knowledge Organiser			Priory Primary School
Science	Animals Including Humans	Year 4	Autumn 2	Biology

Vocabulary	
Absorb	Soak up or take in.
Canine	Pointed teeth near the front of the mouth of humans and of some animals.
Carnivore	An animal that eats meat
Decay	Gradually destroyed by a natural process.
Digestion	Breaking down ingested food material.
Enamel	The hard white substance that forms the outer part of the tooth.
Excretion	The process of eliminates faces, urine or sweat form the body.
Faeces	The solid waste substance that people and animals get rid of from their body by passing it through the anus.
Herbivore	An animal that only eats plants.
Incisor	The teeth at the front of your mouth which you use for biting into food.
Ingested	When animals or plants ingest a substance they take it into themselves for e.g. by eating or absorbing.
Intestines	The tubes in your body through which food passes when it has left your stomach.
Molar	The large, flat teeth towards the back of your mouth t hat you use for chewing your food.
Muscles	Something inside your body that connects to bones and which you use when you make a movement.
Nutrition	The process of taking food into the body and absorbing the nutrients in the foods.
Oesophagus	The part of your body that carries food from the throat to the stomach.
Omnivore	Person or animal that eats all kind of food incusing meat and plants.
Organ	Apart of your body that has a particular purpose.
Plaque	A substance containing bacteria that forms on the surface of your teeth.
Premolar	Two situated on each side of the jaws between the first molar and the canine.
Saliva	A watery liquid that forms in your mouth and helps you to chew and digest food.

Animals, including humans

Statutory requirements

Pupils should be taught to:

- describe the simple functions of the basic parts of the digestive system in humans
- identify the different types of teeth in humans and their simple functions
- construct and interpret a variety of food chains, identifying producers, predators and prey.

Priory Primary School Knowledge Organiser

Science	Animals Including Humans	Year 5	Autumn 1	Biology

Knowledge	
Can you identify all the stages in the human life cycle and describe how they change?	**Identifying and Classifying** Create a time line of the stages of the human life cycle. • **foetus** - an unborn animal or human being in the very early stages of **development** • new born **-** this is a baby that has just been born. • **infancy -** this is a period of **rapid** change. • Many **toddlers** learn to walk and talk at this stage. • childhood - children learn new things as they grow. They become more **independent**. • **adolescence -** this is when the body starts to change and prepare itself for **adulthood. Hormonal** changes take place over a few years. This is also known as **puberty.** • early **adulthood -** this is when humans are usually at their fittest and strongest. • middle **adulthood** - changes such as hair loss may happen. There are also some **hormonal** changes again and the ability to **reproduce** decreases. • late **adulthood -** there is a decline in fitness and strength
What changes do boys and girls experience during puberty?	**Identifying and Classifying** • **Puberty** is the change that happens in late childhood and **adolescence** where the body starts to change because of **hormones.** • Some changes include **growth** in height, more sweat, hair **growth** on arms and legs, under the armpits and on **genitals**, and **growth** in parts of the body such as male **genitals** and breasts**.** • Females begin to **menstruate**.
How does the gestation period of an elephant, human and mouse differ?	**Comparative** Predict what they think the gestation period of these would be and give reasons. Then research the information. State what they have found out. The more new-borns born the shorter the gestation.
Can we plot a graph of gestation periods?	**Pattern seeking** Give children a wide range of animals with gestation periods on children to plot a graph and explain what they have found out.
What are the similarities and differences between children, adolescents and adults?	**Identifying and Classifying** Create a Venn diagram showing similarities and differences between children, adolescents and adults.
Can we track changes over time from a baby to a child?	**Observing over time** Record the length and mass of a baby as it grows. Observe what happens and how it changes. Explain what they have found out.
What are the differences between gestation periods of humans and other animals?	**Research** Children to look up the gestation periods of humans and different animals record how they are different and give reasons why they might differ.

Priory Primary School Knowledge Organiser

Science	Animals Including Humans	Year 5	Autumn 1	Biology

Vocabulary	
Adolescence	The period of your life in which you develop from being a child into an adult.
Adulthood	The state of being an adult.
Development	The gradual growth or formation of something.
Foetus	An animal or human being in its later stages of development before it is born.
Genitals	The reproductive organs.
Gestation	The process in which babies grow inside their mothers body before they are born.
Hormones	A chemical in your body that makes an organ do something.
Infancy	The period of your life when you are a young child.
Lifecycle	The series of changes that an animal or plant passes through from the beginning of its life until its death.
Life processes	There are 7 process that tell us that living things are alive (MRS GREN)
Menopause	The time in which a woman gradually stops menstruating usually around 50 years old.
Menstruation	The monthly discharge of blood by non pregnant women from puberty to menopause.
Offspring	A persons children or an animals young.
Organ	A part of your body that has a particular purpose.
puberty	The stage in someone's life when their body starts to become physically mature.
Reproduction	When an animal or plant produces one or more individuals to itself.
Toddler	A young child who has only just learned to walk.
Vertebrate	A creature which has a spine.

Animals, including humans

Statutory requirements

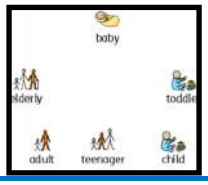
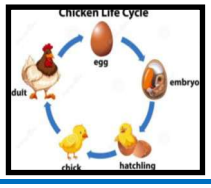
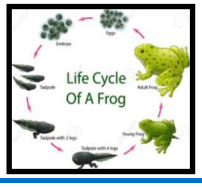
Pupils should be taught to:

- describe the changes as humans develop to old age.

Priory Primary School Knowledge Organiser

Science	Living things and life cycles	Year 5	Autumn 2	Biology

Knowledge

What is reproduction?	**Research** Reproduction is when an animal or plant produce one or more individuals similar to itself. • Sexual reproduction - requires two parents with male and female gametes (cells) • Asexual - Will produce offspring that is identical to the parent. Requires only one • parent.
How do different plants reproduce?	**Comparative** Asexual and sexual Compare how the two types of plants. • Male **gametes** can be found in the **pollen.** • Female **gametes** can be found in the **ovary** (they are called **ovules).** • **Pollination** occurs when **pollen** from the **anther** is transferred to the **stigma** by bees and other insects. • The **pollen** then travels down and meets the **ovule**. When this happens, **seeds** are formed - this is called **fertilisation**. • **Seeds** are then **dispersed** so that **germination** can begin again. • Some **plants,** such as daffodils and potatoes, can also produce **offspring** using asexual **reproduction**
How are animals life cycles different?	**comparative** • The **life cycles** of mammals, birds, amphibians and insects have similarities and differences. • One difference is that amphibians and insects go through the process of **metamorphosis.** This is when the structure of their bodies changes significantly as they grow (for example, from tadpole to frog or caterpillar to butterfly). • Mammal, amphibian, insect, bird. • What is similar what is different?    
Can we grow new plants from different parts of the parent plant?	**Observe over time** Grow new plants from different parts of the parent plant, for example seeds, stem, and root cuttings, tubers, bulbs. Observe what happens. Explain why
How do animals change over a period of time?	**Observe over time** Observe changes in an animal over a period of time (for example by hatching and rearing chicks, comparing how different animals reproduce and grow. Mammals, amphibians and insects.
How does David Attenborough's and Jane Goodall's work compare?	**Research** Research a significant naturalist or animal behaviourist and create a fact file / poster that showcases their life, achievements, and significance.
Why do plants adapt in such a way to their environment?	**Pattern seeking** Watch sections of "Life" videos by David Attenborough. These videos show a range of adapta-tions of both animals and plants to their environment.
Can we draw, label and state the function of parts of the flower?	**comparative** Dissect a flower as a class and compare what we can see to models of flowering plants that we have in school.

Priory Primary School Knowledge Organiser

Science	Living things and life cycles	Year 5	Autumn 1	Biology

Vocabulary	
Anther	Part of the stamen that produces and releases pollen.
bulb	Root shaped like an onion that grows into a flower or plant.
Cell	The smallest part of an animal or plant that is able to function independently.
dispersed	Scattered, separated or spread through a large area.
Dissect	To carefully cut something up in order to examine it.
Embryo	An unborn animal or human in the very early stages of development.
fertilisation	Male and female gametes meet to form an embryo or seed.
Flower	The part of a plant which is often brightly coloured and grows at the end of a stem .
Flowering	Trees or plants which produce flowers
Function	A useful thing that something does.
gamete	The name for the two types of male and female cell that join together to create a new creature.
Germination	If a seed germinates or is germinated it starts to grow.
Life cycle	The series of changes that animal or plant passes through from the beginning of its life until its death.
Mature	When something it matures it is fully developed.
metamorphosis	A person or thing develops and changes into something completely different.
Ovary	A female organ that produces eggs.
Ovule	A small egg.
Petal	Thin coloured or white parts which form part of the flower.
Pollen	A fine powder produced by flowers. It fertilises other flowers of the same species so that it produces seeds.
Pollination	To pollinate a plant or tree means to fertilise it with pollen. This is often done by insects.
reproduction	When an animal or plant produces one or more individuals similar to itself
Stigma	The top of the centre part of a flower which takes in pollen.
Structure	The way in which something is built or made.

Living things and their habitats

Statutory requirements

Pupils should be taught to:

- describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird
- describe the life process of reproduction in some plants and animals.

Priory Primary School Knowledge Organiser

Science	Living things and their Habitats	Year 6	Autumn 1	Biology

Knowledge

What kind of micro-organisms exist?

Observation over time

- **Microorganisms** are very tiny **organisms** where a microscope has to be used to see them.
- Examples of **micro-organisms** include dust mites, bacteria and fungi, such as mould.

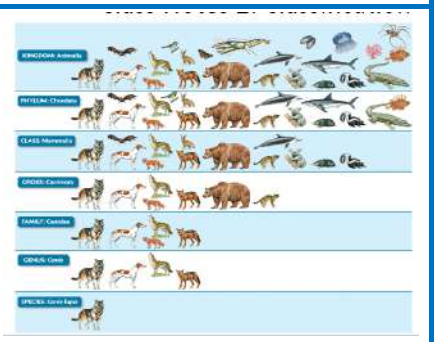
Some **microorganisms** can be helpful in certain situations. Others can be harmful and spread needs to be controlled or contained.
Describe how microorganisms could be classified.
Good microorganism—yeast in baking or harmful infectious diseases.

- What do they look like?
- What are their features?
- How are the different groups different to each other?

What did Carl Linnaeus create in order to classify living things?

Ideas over Time

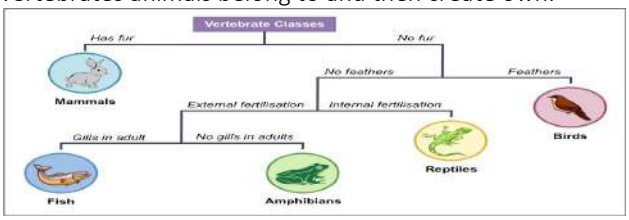
Research the work of Carl Linnaeus
Classification key
How did it revolutionise the understanding of living things?

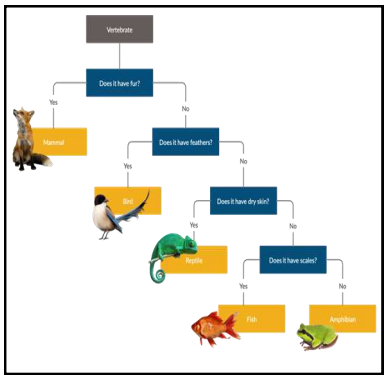


Which group do these organisms belong to?

Identifying and classifying

Sort vertebrates and invertebrate animals into groups, describing their key features and based on similarities and differences.
Use a **classification key** to identify which group of vertebrates animals belong to and then create own.





Which group do these organisms belong to?

Pattern Seeking

Fish, amphibians, reptiles, birds, and mammals.
Describe similarities and differences
Justify your choice of group according to their features.

How can these invertebrates be classified?

Pattern Seeking

Arachnids, insects, molluscs

Describe how these invertebrates could be classified.
What do they look like?
What are their features?
How are the different groups different to each other?

How can plants in your local environment be described and classified?

Observing over Time / Identifying and Classifying

Use classification systems and keys to identify plants in the local environment. Record these in a variety of ways

- Venn diagrams
- Carrol diagrams
- Tables
- Classification key

Why are some organisms difficult to classify into groups?

Research

For example the platypus

- The **platypus** is **hard to classify** because it is part mammal and part reptile.
- It lays eggs, just like reptiles do, but it has fur and he is warm-blooded.

Bats

- Bats are mammals because they are warm-blooded and they have fur.

They also give milk to their babies. But bats have wings that they use to fly.

- Other mammals such as flying squirrels just glide.

Explain why based on characteristics and similarities and differences.

Priory Primary School Knowledge Organiser

Science	Living things and their Habitats	Year 6	Autumn 1	Biology

Vocabulary	
Adaptation	A change in structure or function that improves he chance of survival for an animal or plant within a given environment.
Carnivore	An animal that eats meat.
Environment	All the circumstances, people, things and events around them that influence their life.
Evolution	A process of change that takes place over many generations, during which species of animals, plants, or insects slowly change some of their physical characteristics.
Food chain	A series of living things that are linked to each other because each thing feeds on the one next to it in the series.
Habitat	The natural environment in which an animal or plant normally lives or grows.
Herbivore	An animal that only eats plants.
invertebrate	A creature that does not have a spine, for example an insect, worm or octopus.
microhabitat	A small part of the environment that supports the habitat such as a fallen log in a forest.
microorganism	A very small living thing that you can only see if you see a microscope.
Mini beast	A small invertebrate such as an insect or spider.
omnivore	Person or animal that eats all kinds of food including meats and plants.
Organism	A living thing.
Predator	An animal that kills and eats other animals.
Prey	An animal hunted or captured by another for food.
Species	A class of plants or animals whose members have the same main characteristics and are able to breed with each other.
Vertebrate	A creature which has a spine.

Living things and their habitats

Statutory requirements

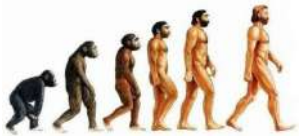
Pupils should be taught to:

- describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals
- give reasons for classifying plants and animals based on specific characteristics.

Priory Primary School Knowledge Organiser

Science	Evolution	Year 6	Autumn 2	Biology

Knowledge

What is evolution?	**Research** **Evolution** is a process of change that takes place over many **generations**, during which **species** of animals, plants, or insects slowly change some of their physical **characteristics.** This is because **off-spring** are not identical to their parents. • It occurs when there is competition to **survive**. This is called **natural selection.** • Difference within a **species** (for example between parents and **offspring**) can be caused by **inheritance** and **mutations**. • Inheritance is when **characteristics** are passed on from generation to the next. • **Mutations** in **characteristics** are not **inherited** from the parents and appear as new • **characteristics**.
How have fossils helped us to understand evolution and provided us with evidence that evolution of species has taken place?	**Identifying and classifying** Evidence of **evolution** comes from **fossils** - when these are compared to living creatures from today, **palaeontologists** can compare similarities and differences. • Other evidence comes from living things - comparisons of some **species** may reveal common **ancestors**.
How are the skeletons of apes, humans and Neanderthals similar or different?	**Comparative** Compare the skeletons of apes, humans, and Neanderthals – how are they similar, and how are they different? 
If living things produce offspring what characteristics / features do they take?	**Comparative** Recognise that living things produce offspring of the same kind but the offspring vary and are not identical to their parents. Look at photos of humans (mum and dad) and compare the features that they share. Does their brother or sister share the same features / characteristics?
What happened when Charles Darwin visited the Galapagos islands?	**Research** Find out what Charles Darwin found out on the Galapagos Islands. How did this help him and the future understand evolution?
How have animals adapted to their environment?	**Observing Over Time** **Adaptation** is when animals and plants have **evolved** so that they have **adapted** to **survive** in their **envi-ronments**. For example, polar bears have a thick layer of blubber under their fur to **survive** the cold, harsh **environment** of the Arctic while giraffes have long necks to reach the leaves on trees. • Some **environments** provide challenges yet some animals and plants have **adapted** to **survive** there • Sometimes **adaptations** can be disadvantageous. One example of this can be the dodo, which became • **extinct** as it lost its ability to fly through **evolution**. Flying was unnecessary for the dodo as it had lived for so many years without predators, until its native island became inhabited. • When **adaptations** are more harmful than helpful, these are called **maladaptation's**.
How have Penguins and cacti plants adapted to survive in extreme weather conditions?	**Comparative** Compare the penguin with a cacti and discuss the ways in which they have adapted to survive the extreme weather conditions. How are they similar and how a re they different I n their ways of adapting?
Is there a pattern between the size and shape of a bird's beak and the food it will eat?	**Pattern seeking** Look at a variety of birds who eat different sizes and shapes of food. • What can they see. Is their a pattern? • Why do they think this is the case?
What did Alfred Wallace discover that developed ideas in evolution?	**Ideas over Time** Look at how Alfred Wallace's research broadened the knowledge of evolution. What did he discover? How has it impacted us today?
How can we have different breeds of dogs such as labradoodles, cockapoos etc. that never existed before?	**Observing over Time** Characteristics are passed onto their offspring, consider different breeds of dogs and what happens for example when Labradors are crossed with poodles. Over time this variation can make animals more or less able to survive in different environments.

Priory Primary School Knowledge Organiser

Science	Evolution	Year 6	Autumn 1	Biology

Vocabulary	
Adaptation	A change in structure or function that improves the chance of survival for an animal or plant within a given environment.
Ancestor	An early type of animal or plant from which a later, usually dissimilar, type has evolved.
Biodiversity	A wide variety of animal and plant species living in their natural environment.
Biome	A large naturally occurring community of animals and plants occupying a major habitat.
Breeding	The process of producing animals by reproduction.
Characteristics	The qualities or features that belong to them and make them recognisable.
Environment	All the circumstances, people, things and events around them that influence their life.
Evolution	A process of change that takes place over many generations during which species of animals, plants or insects slowly change some of their physical characteristics.
Extinct	No longer has any living members either in the world or a particular place.
Fossil	The hard remains of a prehistoric animal that are found inside a rock.
Generation	The act or process of bringing into being through reproduction, especially of offspring.
Inherit	If you inherit a human characteristic you are born with it because your parents or ancestors also had it.
Maladaptation	The failure to adapt properly to a new situation or environment.
Mutation	Characteristics that are not inherited from the parents or ancestors and appear as new characteristics.
Natural selection	A process by which species of animals and plants that are best adapted to their environment survive and reproduce, whilst those that are less well adapted die out.
Offspring	A persons children or an animals young.
palaeontology	The study of fossils as a guide to the history of life on Earth.
Reproduction	When an animal or plant produces one or more individuals similar to itself.
Species	A class of plants of animals whose members have the same main characteristics and are able to breed with each other.
Survive	Continue to exist.
Theory	A formal idea or set of ideas that is intended to explain something.
Variation	A change or slight difference.

Evolution and inheritance

Statutory requirements

Pupils should be taught to:

- recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago
- recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents
- identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.