



Science Curriculum

Autumn Term: Biology
Animals Including Humans
Year 4

Prior Knowledge

Things that I know:	Skills I will need:
That animals, including humans need the right types and amounts of nutrition and that they cannot make their own food.	Recording findings using simple scientific language, drawings, labelled diagrams.
That animals and humans get nutrition from what they eat.	Asking relevant questions and using different types of scientific enquires to answer them.
That humans and other animals have skeletons and muscles for support, protection and movement.	Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions.

Knowledge Objectives

- 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.



Year 4: Biology- Animals Including Humans

Key Concept- Functions



Specific Vocabulary

pancreas	The pancreas produces juices called enzymes which help the body digest food.
oesophagus	The oesophagus is like a stretchy tube that moves food from the back of the throat to the stomach.
stomach	The stomach is the internal organ in which the major part of the digestion of food occurs.
intestine	The main function of the small intestine is absorption of nutrients and minerals from food. The major function of the large intestine is to absorb water from the remaining indigestible food.
liver	The liver creates different enzymes to help process food nutrients that are collected in the small intestine.
salivary gland	The salivary glands contain special enzymes that help digest the starches in your food.
organ	The skin is the biggest organ of your body. Other organs include your brain, lungs, heart, liver, stomach, intestines, pancreas and kidneys are all called internal organs.
incisor	a front tooth typically adapted for cutting
molars	Molars are the teeth that are used for chewing and grinding our food.
canine	Canines are the teeth used for ripping and tearing our food. We have two located at the top of our mouth and two at the bottom.
food chain	A food chain is a diagram that shows us how animals are linked by what they eat.
predators	Predators are wild animals that hunt, or prey on, other animals. Predatory animals need the flesh of the animals that they kill to survive.
prey	The term prey refers to an animal that is sought, captured, and eaten by a predator.
producer	An organism which is the first level of a food chain. They make their own food.
consumer	Are organisms that need to eat to survive.

Important Facts to know by the end of the materials topic:

- Know and name the parts of the digestive system.
- Know the function of each organ of the digestive system.
- Know and identify the different types of teeth in humans.
- Know the function of different human teeth.
- Use food chains to identify producers, predators and prey.
- Construct food chains to identify producers, predators and prey.

Like all animals, humans need to eat in order to survive. The parts of the body that process the food are known as the digestive system. The digestive system helps us to break down food and extract (take out) the useful parts. This is called digestion.

Prior Knowledge:

That animals, including humans need the right types and amounts of nutrition and that they cannot make their own food.

That animals and humans get nutrition from what they eat.

That humans and other animals have skeletons and muscles for support, protection and movement.



Science Curriculum

Summer Term: Physics

Electricity

Year 4

Prior Knowledge

Things that I know:	Skills I will need:
That electricity is used to power things.	Observing patterns to enhance or decrease power.
That forces can move differently.	Investigate which materials are the best conductors of electricity.
That electricity can be dangerous.	Setting up simple circuits to record data.

Knowledge Objectives

- Identify common appliances that run on electricity
- Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.
- Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery.
- Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.
- Recognise some common conductors and insulators, associate metals with being good conductors.



Year 4: Physics – Electricity

Key Concept- Electricity



Specific Vocabulary	
circuit	An electrical circuit is a completed path through which an electrical current flows.
buzzers	A buzzer is an automatic signalling device. They are used as alarms and door bells.
conductor	A conductor is an object or type of material that allows the flow of an electrical current in one or more directions
battery	A battery is a device that stores chemical energy and makes it available in an electrical form.
cells	An electrical cell is a device that is used to generate electricity.
switch	A switch is an electrical component that can 'make' or 'break' an electrical circuit.
socket	Sockets allow electrical equipment to be connected to the alternating current (AC) power supply in buildings and at other sites.
appliance	An electrical appliance is a device that uses electricity to perform a function.
appliance series circuit	Components connected in series are connected along a single path, so the same current flows through all of the components.
insulator	An insulator is a material whose internal electric charges do not flow freely.

Prior Knowledge:

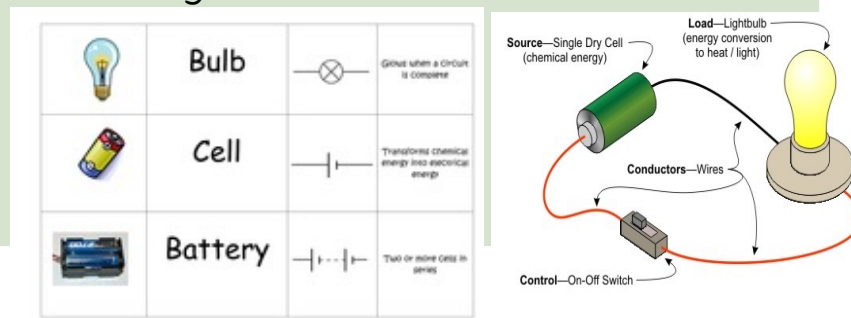
That electricity is used to power things.

That forces can move differently.

That electricity can be dangerous.

Important Facts to know by the end of the materials topic:

- Know about common appliances that run on electricity.
- Know how to construct a simple series electrical circuit.
- Identify and name the basic parts of the circuit, including cells, wires, bulbs, switches and buzzers.
- Know that a switch opens and closes a circuit.
- Know about some common conductors and insulators.
- Know that metals are good conductors.
- Electricity can be generated by from power stations, wind, the sun, water and even animal poo!
- Electricity is a type of energy that can build up in one place to flow to another.
- A power station is a place where electricity is created and sent to our homes.
- Thomas Edison was a very famous inventor who helped us make the most of electricity from bulbs to fuses.





Science Curriculum

Spring Term: Biology

Living things and their habitats

Year 4

Prior Knowledge

Things that I know:	Skills I will need:
That animals and humans need the right types and amounts of nutrition and that they cannot make their own food.	Using and making simple guides or keys.
That animals and humans get nutrition from what they eat.	Raising and answering questions based on their observations
That humans and some animals have skeletons and muscles for support, protection and movement.	Researching both positive and negative affects on environments to draw their own conclusions.

Knowledge Objectives

- 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.



Year 4: Biology- Living things and their habitats

Key Concept- Evolution, adaptation, variation



Specific Vocabulary	
Grouped	Put into groups.
characteristics	A feature or a quality belonging typically to a person, animal, place or thing.
variety	A collection of different things. Having different forms or types.
classification	This is the grouping together of similar species of plant, animal and other organisms.
environment	Everything that is around us. It includes everything living and non living.
local	Relates to the a particular area or one's neighbourhood.
identify	To know and say who or what someone or something is.
organism	A creature, a plant of a single celled life form. E.g. a human, a dog, bacteria

Prior Knowledge:

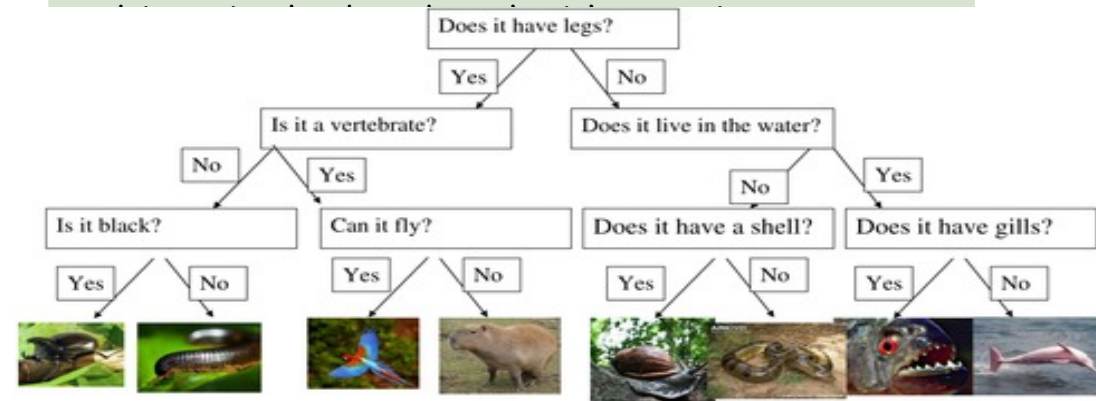
That animals and humans need the right types and amounts of nutrition and that they cannot make their own food.

That animals and humans get nutrition from what they eat.

That humans and some animals have skeletons and muscles for support, protection and movement.

Important Facts to know by the end of the materials topic:

- Know that living things can be grouped in a variety of ways
- Know that environments can change and that this can sometimes pose dangers to living things.
- Know how to use classification keys to help group, identify and name a variety of living



Environments change often.



- Many of these changes are **natural changes**.
- Some changes are **very slow**, taking place over a long period of time.
- Other changes **happen fast, like floods and fires**.
- When an environment changes, it affects the **plants and animals** that live there.



Science Curriculum

Spring Term: Physics

Sound

Year 4

Prior Knowledge

Things that I know:	Skills I will need:
	Finding patterns in the sounds that are made from different objects
	Investigate which different materials provide the best insulation against sound.
	Setting up simple practical enquires, comparative and fair tests.

Knowledge Objectives

- Identify how sounds are made, associating some of them with something vibrating.
- Recognise that vibrations from sounds travel through a medium to the ear.
- Find patterns between the pitch of a sound and features of the object that produced it.
- Recognise that sounds get fainter as the distance from the sound source increases.



Year 4: Physics – Sound

Key Concept- Sound



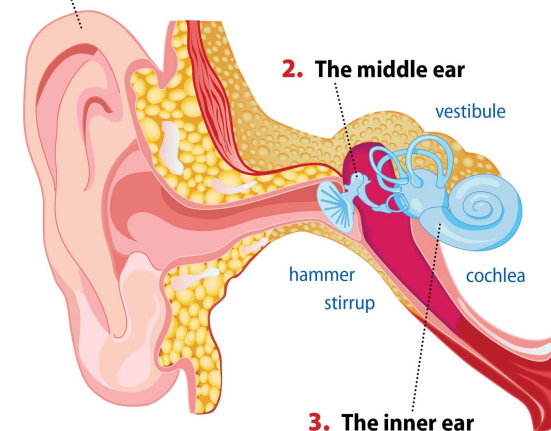
Specific Vocabulary	
vibrating	Sound is caused by the vibration of a medium (usually air) and it travels in waves.
pitch	A high sound has a high pitch and a low sound has a low pitch. A tight drum skin gives a higher pitched sound than a loose drum skin.
volume	Volume is the perception of loudness from the intensity of a sound wave. The higher the intensity of a sound, the louder it is perceived in our ears, and the higher volume it has.
insulation	Protecting something by surrounding it with material that reduces or prevents the transmission of sound.
outer, middle and inner ear	The ear is made up of three different sections: the outer ear, the middle ear, and the inner ear. These parts all work together so you can hear and process sounds.
cochlea	The cochlea looks like a spiral-shaped snail shell deep in your ear. It plays an important part in helping you hear.
auditory	Auditory is close in meaning to acoustic, but auditory usually refers more to hearing than to sound.
frequency	Frequency is measured as the number of wave cycles that occur in one second.
hammer	The ear has little bones called ossicles that help you hear. They are called the hammer (malleus), anvil (incus), and stirrup (stapes). They amplify the sound or make it louder.

Prior Knowledge:

Important Facts to know by the end of the materials topic:

- Know how sound is made from vibrations that create sound waves which move through mediums such as air and water.
- Know how sound travels from the source to the ears.
- Know to associate sound with vibration.
- Know the correlation between pitch and the object producing a sound.
- Know the correlation between the volume of a sound and the strength of the vibrations that produced it.
- Know that sounds get fainter as it travels further away from its source.
- To know how to find patterns between the volume of a sound and the strength of vibrations produced by it.
- Our ear drums vibrate in a similar way to the original source of the vibration, allowing us to hear many different sounds.

1. The outer ear



Sound

Sound is a vibration in the air. For example, when we hear a guitar being played the sound we hear is made when the strings vibrate. This causes the air around them to vibrate.





Science Curriculum

Autumn Term: Chemistry

States of Matter

Year 4

Prior Knowledge

Things that I know:	Skills I will need:
That soils are made from rocks and organic matter.	Research the temperature at which materials change state.
That materials can change shape by bending, squashing, stretching and twisting them.	Observe and record evaporation over a period of time.
That rocks can be grouped and compared on the basis of their appearance and simple physical properties.	Grouping and classifying a variety of different materials.

Knowledge Objectives

- Compare and group materials together, according to whether they are solids, liquids and gases.
- Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius.
- Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.



Year 4: Chemistry- States of Matter

Key Concept- Materials



Specific Vocabulary	
water vapour	Water that is in the form of gas.
condensation	When water vapour that is around us changes from a gas back to liquid.
precipitation	Any watery substance such as rain, water, snow, hail or sleet that falls to Earth.
evaporation	When liquid changes into gas, usually when it heats up.
substance	Any solid, liquid, powder or gas is a substance.
matter	Any solid, liquid or gas that exists in the universe.
gas	Gaseous matter is made up of matter that is loose and is always moving
solid	A substance that stays the same shape. Its particles do not move.
liquid	Liquids will flow as they are made up of loosely packed particles.

Prior Knowledge:

That soils are made from rocks and organic matter.

That materials can change shape by bending, squashing, stretching and twisting them.

That rocks can be grouped and compared on the basis of their appearance and simple physical properties.

Important Facts to know by the end of the materials topic:

- Water can exist in three forms: liquid (water), solid (ice) or gas (water vapour).
- About 70% of Earth is covered in water.
- Water can be used to create electricity through a hydro-electric power station.
- 97% of water is in the oceans (this is salty water) and 2% is in the ice caps, leaving only 1% available for us to drink.

Stages of the water cycle

1	The sun heats up rivers, lakes and the sea.
2	Water evaporates into the air. This is called water vapour.
3	The water vapour rises, cools and condenses to water in the form of clouds.
4	The droplets in the clouds become too heavy and fall as rain, snow or hail.
5	The rain, snow or hail is then collected in rivers that run off to the sea.
6	The cycle starts again.

