

What should I already know?

- Animals can be grouped into **vertebrates** (and then further into fish, amphibians, birds and animals) and **invertebrates**.
- Animal can be grouped into **carnivores**, **herbivores** and **omnivores**.
- The names of some common wild and garden plants and **deciduous** and **evergreen** trees.
- Examples of habitats (including **microhabitats**) and the animals and plants that can be found there.

Scientific Skills

- Ask relevant questions and use different types of scientific enquiries to answer them.
- Make systematic and careful observations and, where appropriate, take accurate measurements, using a range of instruments
- Gather, record, classify and present data in a variety of ways to help with answering questions
- Use straightforward scientific evidence to answer questions or to support his/her findings.

How can living things be grouped and classified?

- All living things, which can be also called organisms, have to do certain things to stay alive.
- Living things can be grouped according to different criteria (where they live, what type of organism they are, what features they have).
- For example, a camel can belong in a group of vertebrates, a group of animals that live in the desert, and a group of animals that have four legs.

How can environments change?

- Habitats** can change throughout the year and this can have an effect on the plants and animals that live there.
- Humans can have positive and negative effects on the environment.
- Positive effects include nature reserves, ecological parks.
- Negative effects include litter, **urban** development.

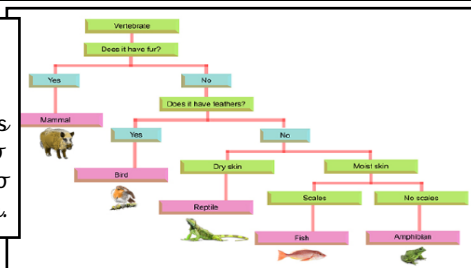
Vocabulary

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.
environment	All the circumstances, people, things and events around them that influence 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 because each thing feeds on the one next to it in the series.
habitat	The natural environment in which an animal or plant lives or grows.
herbivore	An animal that only eats plants.
invertebrate	A creature that does not have a spine, or example an insect, worm or octopus.
life processes	There a seven life processes that tell us that living things are 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	Person or animal who eat all kinds of good, 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; breathing; inhaling and exhaling air.
sensitivity	Responding to the external environment.
vertebrate	A creature which has a spine.

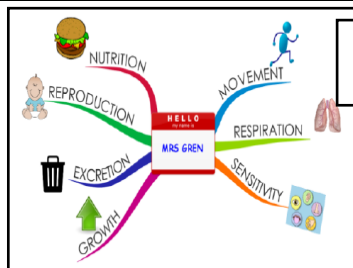
Diagrams

A classification key

A classification key is a tool that is used to group living things to help us identify them.



The seven life processes



Topic: Home from home

Year 4

Subject: Science

1. Which of these is not a vertebrate? (Tick all the correct answers)	Pre unit:	Post unit:
bird		
mammal		
reptile		
insect		
amphibian		

3. Write the word of each living thing in the Venn diagram to show where they belong.



camel



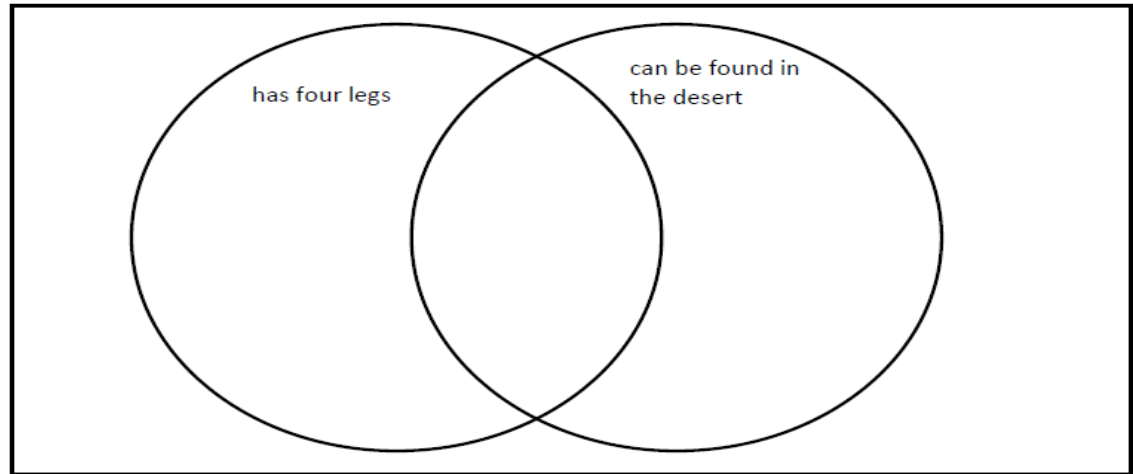
cactus



polar bear



whale



2. A duck and a fish are similar because..... (Tick three)	Pre unit:	Post unit:
they are both vertebrates		
they both need food and water to survive		
they both breathe using gills		
they are both invertebrates		
they both lay eggs		

4. Write the word of each living thing in the Carroll diagram to show where they belong.



salmon



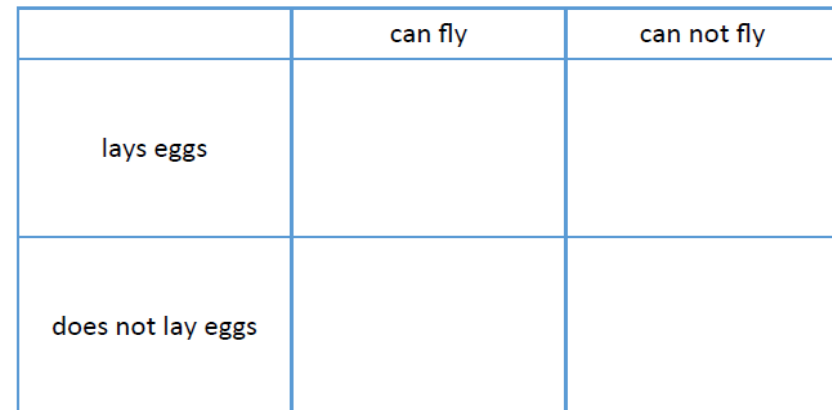
sparrow



rabbit



frog



Topic: Home from home

Year 4

Subject: Science

5. Complete the table by **writing** the name of the minibeast in the right place.

name	legs	wings
	6	0
	0	0
	8	0
	6	2

What should I already know?

- Electricity is a form of energy that can be carried by wires and is used for heating and lighting, and to provide power for devices.
- Sources of light and sound may need electricity to work.

Scientific skills

- Research how to work safely with electricity.
- Make a variety of circuits, investigating which circuits work and why.
- Name the basic parts including cells, batteries, wires, bulbs, switches, motors and buzzers.
- Draw circuits using pictorial representations (not circuit symbols).
- Create circuits using switches.
- Investigate which materials are electrical conductors and insulators.

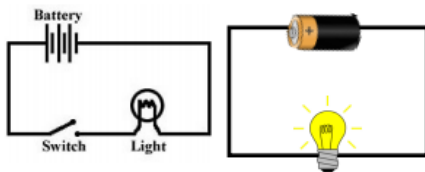
How does electricity power our dynamic Earth?

- Electricity is generated using energy from natural sources such as the Sun, oil, water and wind.
- Some appliances use batteries and some use mains electricity.
- Batteries come in different sizes depending on how much and for how long the appliance is used.
- A complete circuit is a loop that allows electrical current to flow through wires.
- A circuit contains a battery (cell), wires and an appliance that requires electricity to work (such as a bulb, motor or buzzer).
- The electrical current flows through the wires from the battery (cell) to the bulb, motor or buzzer).
- A switch can break or reconnect a circuit (turn the electricity on or off)

Vocabulary

Appliances	A device or machine in your home that you use to do a job such as cleaning or cooking. Appliances are often electrical.
Battery	Small devices that provide the power for electrical items such as torches.
Bulb	The glass part of an electric lamp, which gives out light when electricity passes through it.
Buzzer	An electrical device that is used to make a buzzing sound.
Cell	A synonym for battery.
Component	The parts that something is made of.
Conductor	A substance that heat or electricity can pass through or along.
Current	A flow of electricity through a wire or circuit.
Electricity	A form of energy that can be carried by wires and is used for heating and lighting, and to provide power for devices.
Energy	The power from sources such as electricity that makes machines work or provides heat.
Insulator	A non-conductor of electricity or heat
Mains	Where the supply of water, electricity, or gas enters a building.
Motor	A device that uses electricity or fuel to produce movement.
power	Power is energy, especially electricity, that is obtained in large quantities from a fuel source and used to operate lights, heating, and machinery
Source	Where something comes from.
Switch	A small control for an electrical device which you use to turn the device on or off
wires	a long thin piece of metal that is used to fasten things or to carry electric current.

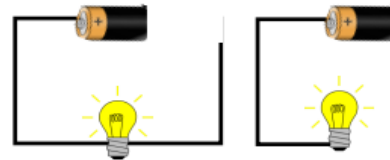
Diagrams



These are complete circuits - they have a battery (cell) and a component (bulb). The wires are placed in the right places of the



Common appliances that use electricity.



These circuits will not work as they are incomplete.

Topic: What powers Earth?

Year 4


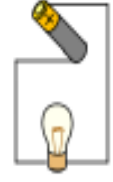

Subject: Science

1. Another name for a battery is: (Tick one)	Pre unit:	Post unit:
circuit		
light		
buzzer		
cell		

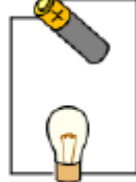
2. Which of these needs a battery to work? (Tick more than one)	Pre unit:	Post unit:
torch		
mobile phone		
games console		
car		

3. How will you know if a material conducts electricity? (Tick one)	Pre unit:	Post unit:
Electricity will flow freely and the circuit will work		
Electricity will not flow and the circuit will not work.		
The battery will not work.		

4. Which of these are conductors of electricity?	Pre unit:	Post unit:
plastic comb		
aluminium spoon		
copper coin		

5. Which of these circuits will light? (Tick one)	Pre unit:	Post unit:
		
		
		

6. Objects that are made from materials that do not allow electricity to pass through are called:	Pre unit:	Post unit:
conductors		
insulators		
batteries		

7. Why won't this circuit work?	Pre unit:	Post unit:
		

8. When more batteries are added to a complete circuit...	Pre unit:	Post unit:
The light bulb does not go on.		
The light bulb becomes brighter.		
The circuit does not work.		
The switch goes off.		

Topic: The Evacuees

Year 4

Subject: Science

What should I already know?

- Why some materials are used for certain purposes because of their properties.
- Some examples of solids, liquids and gases.

Scientific Skills

- Ask relevant questions and use different types of scientific enquiries to answer them.
- Set up simple practical enquiries, comparative and fair tests
- Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.
- Identify differences, similarities or changes related to simple scientific ideas and processes.

How do the states of matters change?

What are particles?

- Particles are what materials are made from.
- They are so small that we cannot see them with our eyes.
- The properties of a substance depend on what its particles are like, how they move and how they are arranged.
- Particles behave differently in solids, liquids and gases.

Solids

- In the solid state, the material holds its shape.
- They have vibrating particles which are closely packed in and form a regular pattern which is why a solid can't be poured.
- Solids always take up the same amount of space.

Liquids

- Liquids can change shape, depending on the container it is in.
- They have particles which are close together but random.
- Liquids can be poured.

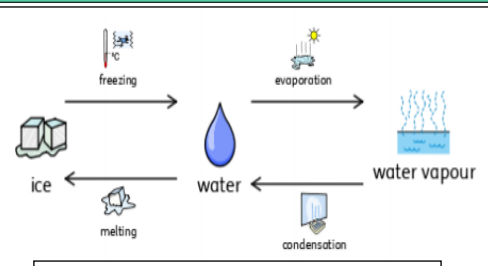
Gases

- In the gas state, particles can escape from open containers.
- Gases have particles which are spread out and move in all directions.

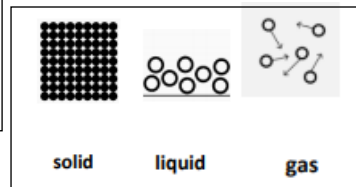
Vocabulary

condensation	Small drops of water which form when water vapour or steam touches a cold surface.
cooling	Lowering the temperature of something.
evaporation	To turn from liquid into gas; pass away in the form of vapour.
freezing	If a liquid or a substance containing a liquid freezes, it becomes solid because of low temperatures
freezing point	The freezing point of a particular substance is the temperature at which it freezes. The freezing point of water is 0°C.
heating	Raising the temperature of something.
melting	To change from a solid to a liquid state through heat or pressure.
melting point	The melting point of a particular substance is the temperature at which it melts.
precipitation	Rain, snow, sleet, dew, etc, formed by condensation of water vapour in the atmosphere.
process	A series of actions used to produce something or reach a goal.
properties	The ways in which an object behaves.
temperature	A measure of how hot or cold something is.
vibrations	When something vibrates, it shakes with repeated small, quick movements.
water cycle	The process by which water on the earth evaporates, then condenses in the atmosphere, and then returns to earth in the form of precipitation.
water vapour	Water in the gaseous state.

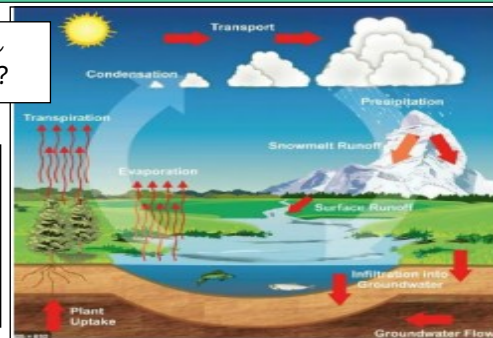
Diagrams



What happens to the particles in water when it is heated or cooled?



What is the Water Cycle?



Topic: The Evacuees

Year 4

Subject: Science


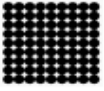
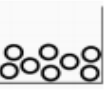
1. The particles in a solid: (Tick one)	Pre unit:	Post unit:
...are closely pack together and vibrate.		
...move freely, over each other within a container in which they are held.		
...can be poured.		
...are very spread out and can escape an open container.		

2. The particles in a liquid: (Tick one)	Pre unit:	Post unit:
...are closely pack together and vibrate.		
...move freely, over each other within a container in which they are held.		
...can be poured.		
...are very spread out and can escape an open container.		


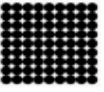

2. The particles in a gas: (Tick one)	Pre unit:	Post unit:
...are closely pack together and vibrate.		
...move freely, over each other within a container in which they are held.		
...can be poured.		
...are very spread out and can escape an open container.		

4. Match the states to the correct particle structures.

Pre unit:

solid	
liquid	
gas	

Post unit:

solid	
liquid	
gas	

5. What is the freezing point of water?

Pre unit:	Post unit:

6. Match these changes to the scientific name for the process.

Pre unit:

ice turns to water	condensation
water turns to water vapour	evaporation
water vapour turns to water	melting

Post unit:

ice turns to water	condensation
water turns to water vapour	evaporation
water vapour turns to water	melting

7. Explain why puddles get smaller after it has rained.

Pre unit:	Post unit:

Topic: What was it like growing up in Europe?

Year 4

Subject: Science

What should I already know?	How do we change as we get older?	Vocabulary	
<ul style="list-style-type: none"> Humans change physically as they grow from child into adult. The main difference between male and female bodies. The scientific names for all body parts. 	<ul style="list-style-type: none"> Describe the main stages of the human life cycle. Describe the body changes that happen when a child grows up. Know that during puberty the body changes from a child into a young adult. Understand why the body changes in puberty. Identify some basic facts about pregnancy. Know the physical changes that happen in puberty Know that each person experiences puberty differently 	breasts	Soft organs on the front of a woman's chest which secrete milk after child birth.
		eggs	The part of the female that helps create a baby
		life-cycle	The stages a living thing goes through during its life.
		physical changes	Changes to the body that can be seen.
		pregnancy	The time during which a woman is expecting a baby.
		puberty	Physical changes through which a child's body matures into an adult body
		pubic hair	Hair that begins to grow around private parts and under arms during puberty.
		reproduction	The biological process by which babies are produced from their parents.
		sperm	The part of the male that helps create a baby

Scientific objectives


- Understand that the life processes common to humans and other animals include nutrition, movement, growth and reproduction
- Learn about the main stages of the human life cycle.

Diagrams

Height
You get taller.

Face
You may get pimples.

Privates
Your penis and testicles get bigger.

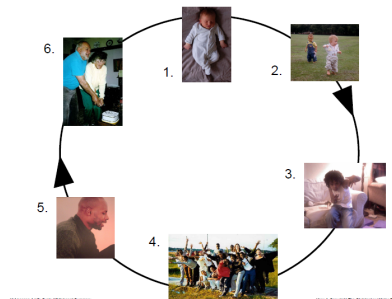


Puberty: What Happens?

Voice
Your voice deepens.

Sweat
Your armpits sweat.

Hair
Hair grows on your face, arms, legs, chest, armpits, and between your legs.



Face
You may get pimples.

Sweat
Your armpits sweat.

Menstruation
Your period begins.



Puberty: What Happens?

Height
You get taller.

Breasts
Your breasts grow.

Hair
Hair grows in your armpits, on your legs, and between your legs.

Topic: What was it like growing up in Europe?

Year 4

Subject: Science

1. As we grow older, we get more _____ on our bodies. (Tick one)	Pre unit	Post unit
Hair		
Freckles		
Scales		

2. Tick the correct description of a life cycle. (Tick one)	Pre unit	Post unit
The stages where a child changes into an adult only.		
The stages where a baby changes into a child only.		
The stages a living thing goes through during its life.		

3. Physical changes occur as a child grows into an adult. (Tick one)	Pre unit	Post unit
True		
False		

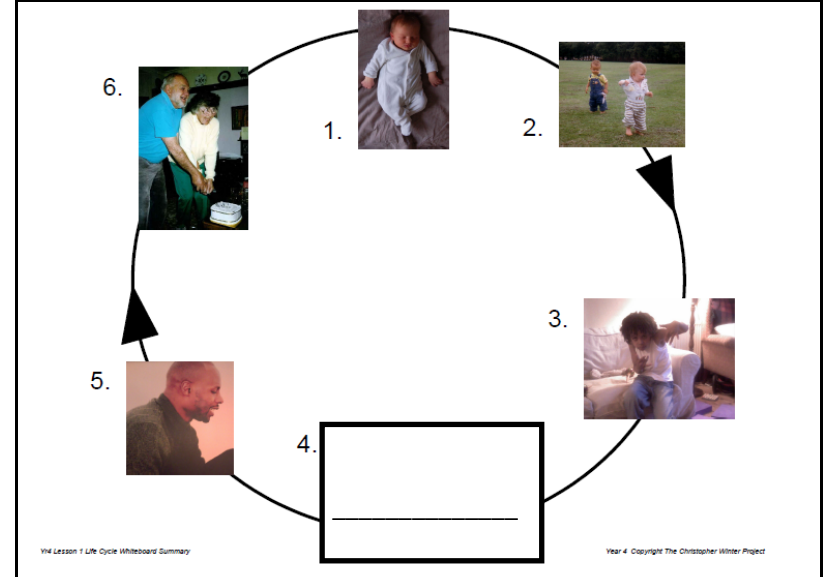
4. **Circle** the changes that happen to **males** during puberty.

- Grows taller
- Has hair under the arms
- Develops pubic hair
- Grows hair on the face
- Hips widen
- Breasts grow
- Hair on legs
- Periods start
- Voice gets deeper
- Shoulders get broader
- Feet get bigger

5. **Circle** the changes that happen to **females** during puberty.

- Grows taller
- Has hair under the arms
- Develops pubic hair
- Grows hair on the face
- Hips widen
- Breasts grow
- Hair on legs
- Periods start
- Voice gets deeper
- Shoulders get broader
- Feet get bigger

6. Which main stage is missing from the human life cycle? toddler, adult, elder, teenager, baby or child?



Topic: Why is Henry VIII famous?

Year 4

Subject: Science

What should I already know?

- The parts of the human body and what they do.
- Animals get nutrition from what they eat.
- Humans and some animals have skeletons and muscles for support, protection and movement.
- Excretion is one of the seven living processes.

Scientific Skills

- Ask relevant questions and use different types of scientific enquiries to answer them
- Gather, record, classify and present data in a variety of ways to help with answering questions
- Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.

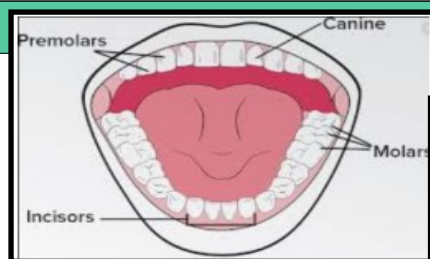
What are the functions of our digestive system and teeth?

- The smell of food triggers saliva to be produced. 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 the mixed food is mixed further then sent to the small intestine which absorbs nutrients from the food.
- Any leftover broken down 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.

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 a tooth
excretion	The process of eliminating faeces, urine, or sweat
faeces	The solid waste substance that people and animals get rid of from their body.
herbivore	An animal that only eats plants.
incisor	The teeth at the front of your mouth.
ingested	When animals or plants ingest a substance, they take it into themselves, for example by eating or absorbing it
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.
oesophagus	The part of your body that carries the food from the throat to the stomach.
omnivore	Person or animal eats all kinds of food, including both meat and plants.
plaque	A substance containing bacteria that forms on the surface of your teeth.
premolar	Two situated on each side of both jaws between the first molar and the canine .
saliva	The watery liquid that forms in your mouth and helps you to chew and digest food .
stomach	The organ inside your body where food is digested before it moves into the intestines.

Diagrams



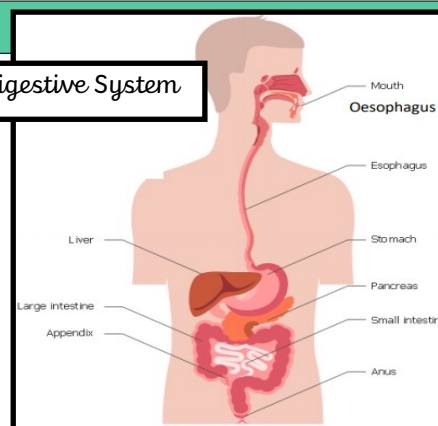
Names and location of the different types of teeth.

Teeth are used for cutting and chewing food.

Humans look after their teeth by brushing and flossing 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.

The Digestive System



Topic: Why is Henry VIII famous?

Year 4

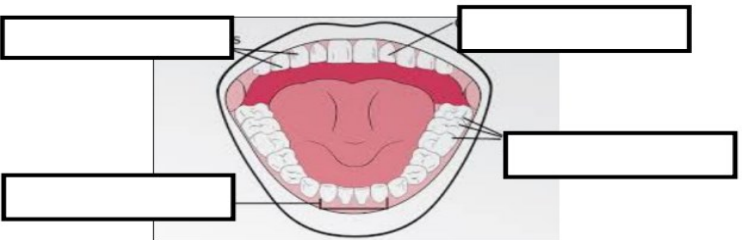
Subject: Science

1. Place these in order of what happens in the digestive system by numbering them 1–4.	Pre unit:	Post unit:
Teeth chew food and saliva helps the food to break down.		
Any final nutrients are absorbed before waste is pushed out by the anus.		
In the stomach the food is mixed further and then sent to the intestines.		
The food is pushed down the oesophagus to the stomach.		
2. Which of these life processes takes place when waste is pushed out? (tick one)	Pre unit:	Post unit:
respiration		
excretion		
growth		

4. Name two ways we can look after our teeth.
Pre unit:
Post unit:

5. The substance that contains bacteria on the surface of your teeth is called... (tick one)	Pre unit:	Post unit:
plaque		
canines		
molars		
canines		

6. Tooth decay occurs when teeth are kept healthy. (tick one)	Pre unit:	Post unit:
True		
False		

3. Label the types of teeth; incisors, molars, premolars, canines.	Pre unit:	Post unit:
		

7. What is the name of the substance that helps break down food? (write one word)
Pre unit:
Post unit:

Topic: Who were the Romans?

Year 4

Subject: Science

What should I already know?

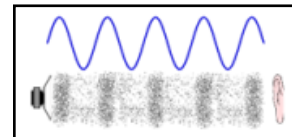
- Hearing is one of my five senses.
- Sounds can be combined using musical instruments.
- What the word vibration means.

Scientific skills

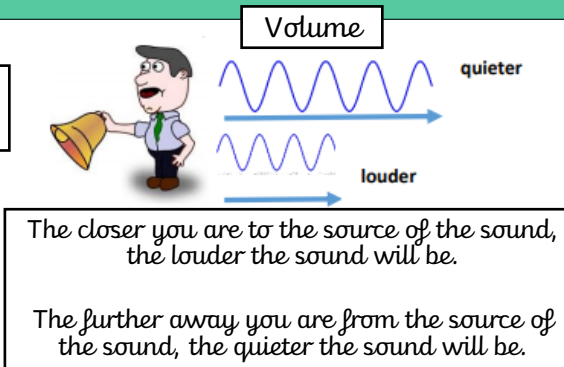
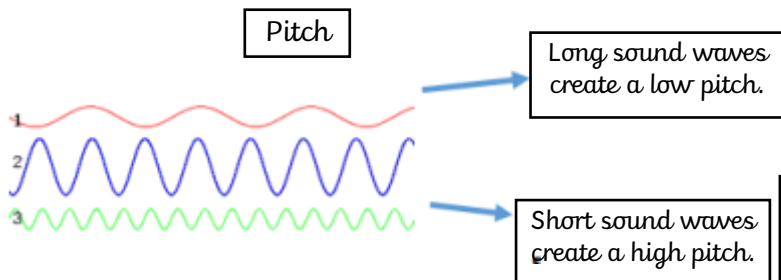
- Ask relevant questions and use different types of scientific enquiries to answer them.
- Set up simple practical enquiries, comparative and fair tests
- Gather, record, classify and present data in a variety of ways to help with answering questions
- Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.

How can sounds be made, heard and changed?

- A sound in something that can be heard.
- When objects vibrate, a sound is made.
- The vibration makes the air around the object vibrate and the air vibrations enter your ear. These are called sound waves.
- When an object vibrates, the air around it vibrates too. This vibrating air can also be known as sound waves.
- The sound waves travel to the ear and make the eardrums vibrate.
- Messages are sent to the brain which recognises the vibrations as sounds



Diagrams



Vocabulary

amplitude	A measure of the strength of a sound wave.
volume	A measure of how loud or soft something sounds and is related to the strength of the vibrations.
sound	Vibrations that travel through the air or another medium and can be heard.
energy	The power to make something work. It comes from different sources.
particles	An extremely tiny piece of matter that make up everything.
pitch	How high or low a sound is.
vibration	A rapid motion back and forth/up and down.
source	Where something comes from.
absorb	To take in or soak up something.
wave	Moving energy. When something vibrates, sound waves are created.

Topic: Who were the Romans?

Year 4

Subject: Science

1. How does sound travel? (Tick one)	Pre unit:	Post unit:
In a straight line		
In a curvy line		
As a series of vibrations		
By making a noise.		

3. When the volume of a sound increases, this is because... (Tick one)	Pre unit:	Post unit:
...you turned it up.		
...there are stronger vibrations.		
...nothing changes.		

5. True or false? When the distance to a sound is made greater, the sound gets... (Tick one)	Pre unit:	Post unit:
Louder		
Quieter		

2. The volume of a sound is measure in... (Tick one)	Pre unit:	Post unit:
decibels		
centimetres		
kilograms		
miles		

4. On a stringed instrument the pitch can be changed by... (Tick one)	Pre unit:	Post unit:
...hitting the string harder.		
...hitting the string softer.		
....tightening the string.		
....loosening the string .		

6. Sound can travel through... (Tick one)	Pre unit:	Post unit:
...water.		
...the air.		
...the floor.		
...all of the above.		

7. True or false? Sound is caused by vibrations. (Tick one)	Pre unit:	Post unit:
True		
False		

Topic: Who were the Romans?

Year 4

Subject: Science

Question 8: Match the key words with the correct definition.

Start of
Unit:

Sound

A measure of how loud or soft something sounds and is related to the strength of the vibrations.

Volume

How high or low a sound is.

Pitch

Vibrations that travel through the air or another medium and can be heard.

Question 8: Match the key words with the correct definition.

End of
Unit:

Sound

A measure of how loud or soft something sounds and is related to the strength of the vibrations.

Gospel

How high or low a sound is.

Pitch

Vibrations that travel through the air or another medium and can be heard.