St Luke's CE Primary School Long Term Science Curriculum Planning

<table>
<tr><th>Year 1 Term Autumn 1</th><th>Unit Title: Animals including humans</th></tr>
<tr><th>NC Objectives</th><th>Key Knowledge Content</th></tr>
<tr><td rowspan="2">Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.

Identify and name a variety of common animals that are carnivores, herbivores and omnivores.

Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets).

Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.

Non-statutory notes
Pupils should use the local</td><td><u>Context of study</u>
This unit is the first science unit where pupils study animals, including humans, as part of the discipline of biology - the study of living organisms. From Reception, pupils can name common animals and their babies. Pupils also know that animals live in particular habitats and know some common features of mini beasts.

In this Year 1 unit, pupils further develop their knowledge of animals and how animals are grouped including fish, amphibians, reptiles, birds and mammals. New learning includes identifying and naming a variety of common animals that are carnivores, herbivores and omnivores. Pupils will identify, name, draw and label the basic parts of the human body. Aswell as learn about the senses. When pupils continue with this unit in Year 2, pupils will learn about how animals, and humans, grow and change. Pupils will study life cycles of humans and animals such as butterflies, chickens and frogs.</td></tr>
<tr><td><u>Knowledge Content</u>
Know that the study of animals, including humans is part of the discipline of biology - the study of living organisms.

Know that animals are grouped together in 'families'.
Know and name the groups fish, amphibians, reptiles, birds and mammals.
Know that fish, amphibians, reptiles, birds and mammals are similar in that they have internal skeletons and organs.
Know that animals that have a backbone are called vertebrates.
Know that there is a difference between a pet and a wild animal.
Know that dogs, cats, hamsters, fish, rabbits can be kept as pets.
Know the names of animals that can be found in the local area.
Know the names of some animals found in the wider world.</td></tr>
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environment to explore and answer questions about animals in their habitat.

Understand how to take care of animals from their local environment and to return them safely after study.

Know the names of animals including those that are kept as pets.

Learn the names of the main body parts (including head, neck, arms, elbows, legs, knees, face, ears, eyes, hair, mouth, teeth) through games, actions, songs and rhymes.

Use their observations to compare and contrast animals.

Focus
Know how to classify a range of animals by amphibian, reptile, mammal, fish and birds.

Animals	**Local Area**	**Wider World**
Fish	Carp, Stickleback	Tuna, Salmon
Amphibians	Common toad, frog, newt	Poison dart frog, Red eyed tree frog, Salamander
Reptiles	Common lizard, Grass snake, Adder	Turtle, Chameleon, Crocodile
Birds	Magpie, Robin, Blackbird	Penguin, flamingo, Ostrich
Mammals	Squirrel, fox, mouse, hedgehog	Tiger, Elephant, Meercat, Giraffe

Know the features of a fish - **gills, scales, fins**, live in water.
Know the features of mammals - hair or fur, babies drink mother's milk, live on land or water.
Know the features of amphibians - live on land or water when adults, soft skin, lay eggs in water, live in water when young.
Know the features of reptiles – dry, **scaly skin**, lay eggs on land.
Know the features of birds - wings, feathers, **beak/bill**, hatch from eggs, most can fly but some can't (e.g. **ostrich, penguin**).

Know that **herbivores** eat plants.
Know that **carnivores** eat other animals (meat).
Know that **omnivores** eat plants and meat.
Know that rabbits are herbivores.
Know that cats are carnivores.
Know that humans are omnivores.

<u>Senses</u>
Know the senses see, hear, smell, taste, touch.

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<td>Know and classify animals by what they eat (carnivore, herbivore and omnivore).

Know how to sort by living and non-living things.

Know the name of parts of the human body that can be seen.</td>
<td>Know which part of the body is used for each sense.

<table>
<tr><th><u>Sense</u></th><th><u>Part of the body</u></th></tr>
<tr><td>See</td><td>Eyes</td></tr>
<tr><td>Hear</td><td>Ears</td></tr>
<tr><td>Smell</td><td>Nose</td></tr>
<tr><td>Taste</td><td>Tongue</td></tr>
<tr><td>Touch</td><td>Hands/Feet</td></tr>
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<u>Parts of the body</u>
Know the names of parts of the body- hair, head, eyes, nose, teeth, elbow, thumb, knee, toes, foot, leg, fingers, hand, shoulders, mouth, ears.
Know the rhyme- head, shoulders, knees and toes.
Know where the brain is.
Know that we use our brain to think and remember things.</td>
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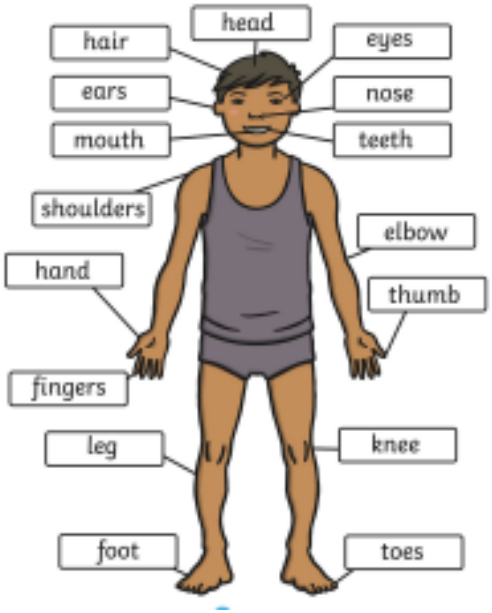


WORKING SCIENTIFICALLY

Create a human graph to make comparisons and answer questions.

STEAM opportunities

-Speak to a zoologist or farmer using skype a scientist/face time a farmer.
-Invite in to class a representative from a wildlife or nature charity, e.g., RSPCA.
-Visit a local park.
-Visit a local animal rescue sanctuary, e.g., birds, hedgehogs.

Outcome

Topic Test 1
Scavenger hunt using different senses

Reading Link

The Gruffalo

	Scientist/Inventor Rachel Carson
Approved Resources	Switched on Science CGP BBC Bitesize

Year 2 Term Autumn 1	**Unit Title: Animals including humans**
NC Objectives	**Key Knowledge Content**
Notice that animals, including humans, have offspring which grow into adults. Find out about and describe the basic needs of animals, including humans, for survival (water, food, and air). Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. **Non-statutory notes** Basic needs of animals for survival. Importance of exercise and nutrition for humans.	Context of Study This is the science unit where pupils study animals, including humans, as part of the discipline of biology - the study of living organisms. From previous learning pupils have a secure knowledge of common animals, their babies and their habitats. Pupils can identify and name a variety of common animals that are carnivores, herbivores and omnivores. Pupils can identify, name, and label the basic parts of the human body. In this Year 2-unit, pupils study life cycles and learn that animals, including humans, have offspring which grow into adults. They learn the basic needs of animals, including humans, for survival and the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. In Year 3 and 4 pupils learn to classify and group animals and learn about skeletons, the digestive system and healthy eating. In Year 5 and 6 pupils continue their learning of life cycles, how humans develop and the circulatory system.
	Knowledge Content Know that the study of animals, including humans is part of the discipline of **biology** - the study of living organisms. Life Cycles Know the following animals and their babies and identify them in photos -

Animals	**Babies**
dog	puppy
cat	kitten
horse	foal
bird	chick

Introduce the processes of reproduction and growth in animals.

Observe how different animals grow.

Focus
Know the basic stages in a life cycle for animals, including humans.

Know why exercise, a balanced diet and good hygiene are important for humans.

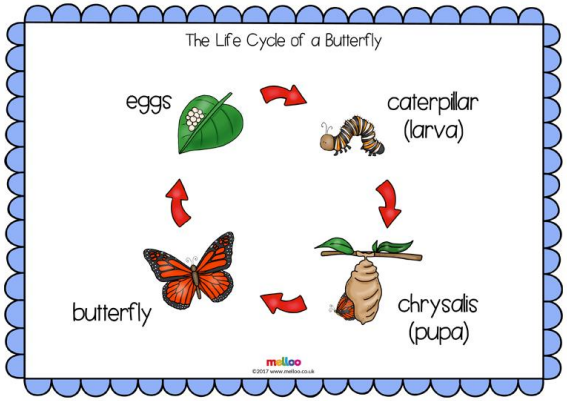
cow	calf
pig	piglet
goat	kid
duck	duckling
lion	cub
sheep	lamb
snake	hatchling

Know that animals grow in a **womb**, and are born or **hatch**.
Know that some animals hatch from eggs and some have live young:

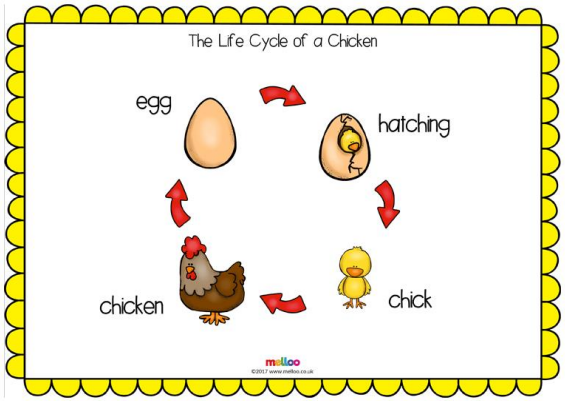
Hatch from an egg	**Live young**
swifts	horses
frogs	cats
toads	dogs
crabs	pigs
moths	cows
spiders	lions
crocodiles	sheep

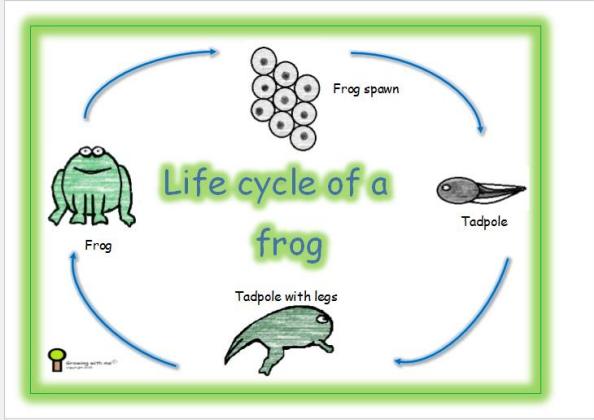
Know that animals grow and change over their lifetime.
Know that some animals need milk and care from their mothers e.g., lambs, calves, piglets.
Know that ducklings look after themselves.
Know the life cycle of a human- baby, toddler, child, teenager, adult, elderly.

Know the life cycle of a butterfly - egg, caterpillar, pupa, butterfly



Know the life cycle of a chicken - egg, chick, chicken



	Know the life cycle of a frog - frogspawn, tadpole, frog.  Know that **metamorphosis** is the change from a caterpillar to butterfly/tadpole to adult frog. Know that a butterfly **pupa** is often known as a **cocoon** or **chrysalis**. Know how to identify the following species of UK butterfly: -Peacock  -Red admiral  -Painted lady

	 Health Know that animals and humans need water, food and air to survive. Know that humans need exercise to stay fit and healthy. Know the following terms - **muscles, flexible, strength, circulation.** Know that the **heart** pumps blood around the body and that **lungs** are used for breathing. Know that the heart and lungs are called **organs**. Know that when we breathe in, we take **oxygen** from the air. Diet Know that we need a **balanced diet**. Know that many foods have a lot of sugar in them. Know that eating too much sugar can affect out health. Know that a bowl of ice cream and sauce has eight teaspoons of sugar. Know that an apple has no sugar. Know that a balanced diet consists of the five food groups. Know examples from each food group. -**Carbohydrates** give us energy (e.g. bread, pasta, rice) -**Protein** helps the body to grow and repair itself (e.g. meat, fish, eggs) -**Dairy products** keep bones and teeth healthy (e.g. milk, yoghurt, cheese) -**Fruit and Vegetables** keep your digestive system healthy. (e.g. apple, orange, pear, strawberry, melon) -**Fats and Sugars** give us energy but should not be eaten too often (e.g. butter, chocolate, sweets, jam, cakes, biscuits)

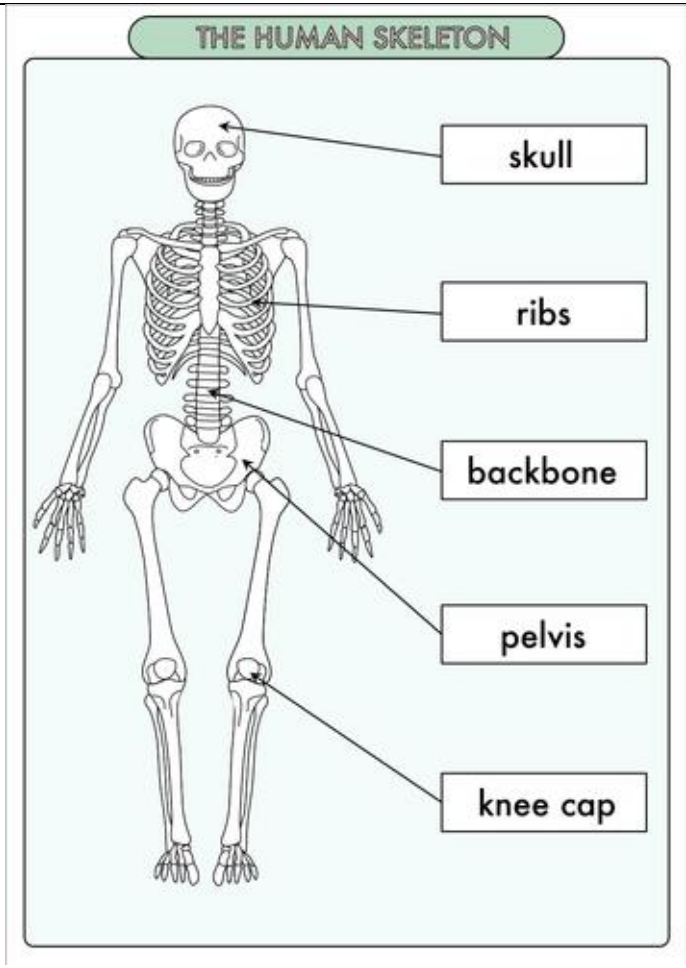
	Know that we need to drink water to be **hydrated** and stay healthy. Know that water is good to drink as it does not contain **calories** and is not harmful to teeth. Know that sugary soft drinks can damage teeth and cause weight gain. <u>Hygiene</u> Know that a **germ** is a tiny living thing we cannot see with our eyes. Know that they can live on our bodies, and can cause **disease**. Know that they are only visible through a **microscope**. Know basic **hygiene** rules to prevent the spread of germs. -Wash hands regularly (before eating and after using the toilet). -Cover your mouth when sneezing or coughing. -Have a bath or shower regularly. -Wash your hair at least twice a week. -Wear clean clothes. -Brush your teeth twice a day. <u>WORKING SCIENTIFICALLY</u> Pupils will taste and test food and classify foods. Such as classify vegetables according to parts of a plant.
	<u>STEAM opportunities</u> -Invite in a sports person to talk about keeping fit and healthy. -Invite a chef or nutrition expert in to class to talk about healthy food choices. -Photograph fitness poses. -Use Paint and Draw programs to create images of different foods.
	<u>Outcome</u> Topic Test 1 Create a healthy plate
	<u>Reading Link</u> Tadpole's promise
	<u>Scientist/Inventor</u>

	Louis Pasteur
Approved Resources	Switched on Science CGP BBC bitesize

Year 3 Term Autumn 1	**Unit Title: Animals including humans**
NC Objectives	**Key Knowledge Content**
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. **Non-statutory notes** Introduce pupils to the main body parts associated with the skeleton and muscles, finding out how different parts of the body have special functions. Identify and group animals with and without skeletons.	<u>Context of Study</u> This unit of animals including humans is studied by children in each year group as part of the science discipline biology- the study of living organisms. Pupils have a secure knowledge of life cycles and what animals, including humans, need to survive and the importance of a healthy lifestyle. Pupils can identify and name a variety of animals. Pupils know the names of animals which live in the sea, rivers and canals and the features that help them to live there. Pupils can use classification keys to help group, identify and name a variety of living things in their local and wider environment. In this Year 3 unit, pupils learn 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. Pupils further develop their knowledge of what humans need to thrive by learning about a balanced diet, the food groups, and their role in human development. New learning includes how humans and some other animals have skeletons and muscles for support, protection, and movement. This work is built upon in Year 4 where pupils learn about the digestive system, teeth, and food chains. The knowledge acquired in this unit will help pupils in Year 5 as they learn about puberty and gestation periods of animals before studying the circulatory system in Year 6.
	<u>Knowledge Content</u> Know that the study of animals, including humans is part of the discipline of **biology** - the study of living **organisms.** <u>Nutrition</u> Know that the basic needs of all humans and other animals are food, water, **oxygen**, and shelter. Know humans need to eat regularly and eat different kinds of food to stay healthy. Know that **vitamins** are substances humans need to stay healthy and that they are found in foods.

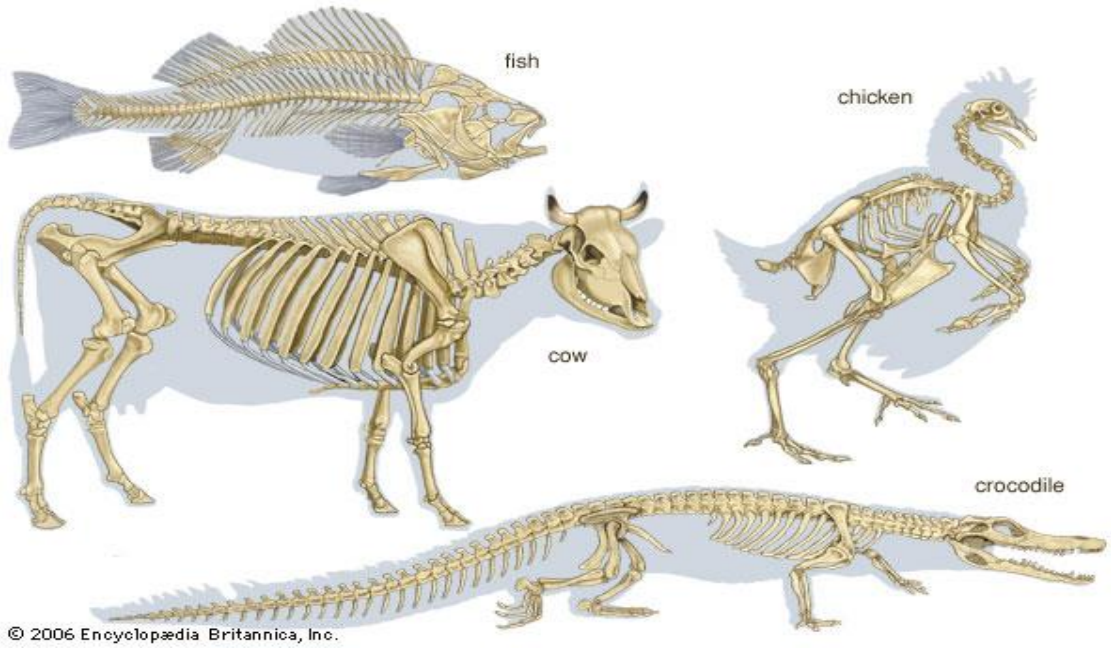
Exploring ideas about what would happen if humans did not have skeletons. Compare and contrast the diets of different animals and decide ways of grouping them according to what they eat. Research different food groups and how they keep us healthy and design meals based on what they find out. **Focus** Know about the importance of a nutritious, balanced diet. Know how nutrients, water and oxygen are transported within animals and humans. Know about the skeletal and muscular system of a human.	Know that the food that humans eat can be divided up into different groups. Know these different groups: <u>Fruit and vegetables</u> Know that fruit and vegetables are a good source of vitamins. Know that they are low in fat and **calories.** <u>Starchy foods</u> Know that bread, rice, potatoes, pasta, and cereals are **starchy** foods and should be a third of the food we eat. Know that they are a good **source** of energy. <u>Dairy food</u> Know that milk, cheese, and yoghurt are **dairy** foods. Know that dairy is a good source of **protein** and **calcium.** Know that our bodies need protein to work properly and to help the body repair itself. Know that calcium helps to keep our bones and teeth strong. <u>Meat, fish, eggs, beans, pulses, and nuts</u> Know that these help the body to grow. Know that they are rich in protein for healthy bones. Know that fish is good for keeping the heart healthy. <u>Fat and sugar</u> Know that fats and sugar are needed in small amounts. Know that fats are important as they provide the body with energy and help the skin and brain. Know that fats act as **insulation** to help keep humans warm. Know that sugar is a source of energy but it should only be a small part of our diet. Know that excess sugar can lead to **tooth decay**, type 2 **diabetes**, and other health issues. <u>Water</u>

	Know that water is essential to life; without water humans and other animals would die. Know that thirst is a sign that the body is **dehydrated** so we need to keep **hydrated** and drink water, milk and eat fruit and vegetables but avoid sugary drinks. <u>Skeletons</u> Know that the skeleton is a strong, **rigid** structure inside the body made of bone. Know what a human skeleton looks like and be able to name key parts of a skeleton including: skull, rib cage, spine (backbone), pelvis, knee cap.



Know that the bones of our skeleton provide us with a strong structure supporting and protecting the rest of the body.
Know that the ribs form a protective structure around the heart and lungs.
Know that the skull protects the brain.
Know that inside bone is a spongy tissue called **bone marrow.**
Know that **cartilage** covers the ends of bones allowing them to move freely.

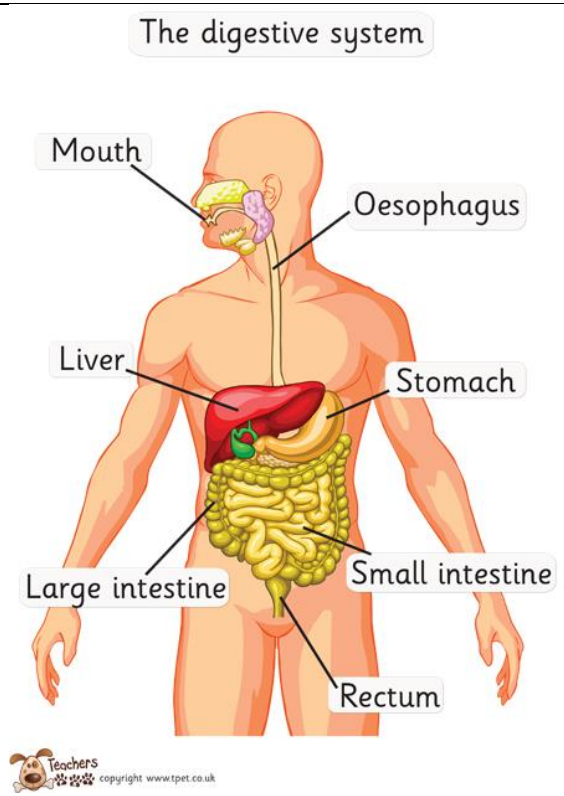
	Know that noses and ears are made from cartilage. Know that sharks, have whole skeletons made of cartilage. Know that we are born with around 300 bones, but as we get older some of these **fuse** together into large bones. Know that adults have 206 bones. Know that creatures such as crabs, lobsters and insects have a tough **external skeleton, or exoskeleton.** <u>Muscles and Joints</u> Know that joints are the places where bones meet. Know that joints allow the skeleton to move and allow humans and other animals to grow. Know that there are different types of joint: -**Sliding joints** like the ankle and wrist -**Fixed joints** like the bones in the skull. -**Ball and socket joints** like the hip and shoulder. -**Hinge joints** like the elbow and knee. Know that muscles are attached to bones by **tendons**. Know that muscles work in pairs. Know that muscles **contract** and **relax** and this is what causes movement. Know the names of these muscles and their location in the body: **biceps, triceps, gluteus maximus, hamstring, calves, abdominals.** Know that muscles move the eyes. Know that the heart is a ball of muscle which pumps blood around the body. Know that the smallest muscle in the human body is the **stapedius**; it is a tiny muscle that is less than 2 mm long located in the middle ear. Know that the largest and strongest muscle is the gluteus maximus.

	<u>WORKING SCIENTIFICALLY</u> Compare the skeletons of Humans with the skeletons of other animals. E.g. birds, fish, and mammals. 
	<u>STEAM opportunities</u> -Cook recipes and design healthy snacks and plates of food: consider the views of others to improve their ideas. - Create a basic stick-man skeleton out of pipe cleaners, cover it in modelling clay, then create a video using stop-motion animation. - Research Giuseppe Arcimboldo and create portrait heads from fruit and vegetables.
	<u>Outcome</u> Topic Test 1 Design a healthy, balanced meal.
	<u>Reading Link</u>

	Skeleton Cat
	<u>Scientist/Inventor</u> Marie Curie
Approved Resources	Switched on Science CGP BBC Bitesize

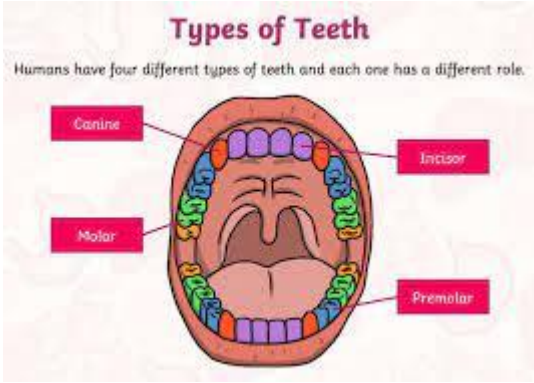
Year 4 Term Autumn 1	**Unit Title: Animals including humans**
NC Objectives	**Key Knowledge Content**
Describe the simple functions of the basic parts of the digestive system in humans. Identify the different types of teeth in humans and their simple functions. Construct and interpret a variety of food chains, identifying producers, predators and prey. **Non-statutory notes** Introduce the main body parts associated with the digestive system- mouth, tongue, teeth, oesophagus, stomach, small and large intestine.	<u>Context of Study</u> This unit of animals including humans is studied by children in each year group as part of the science discipline biology- the study of living organisms. Pupils have a secure knowledge of life cycles and what animals, including humans, need to survive. Pupils know the importance of a healthy lifestyle, including a balanced diet and their role in human development. Pupils can identify and name a variety of animals and the features that help them to live there. Pupils can use classification keys to help group, identify and name a variety of living things in their local and wider environment. Pupils know that humans and some other animals have skeletons and muscles for support, protection, and movement. In this Year 4 unit, pupils learn about the simple functions of the basic parts of the digestive system in humans. New learning includes identifying the different types of teeth in humans and their functions. Pupils will construct and interpret a variety of food chains, identifying producers, predators, and prey. In year 5 pupils will then learn about the changes in humans and the gestation of animals. This Year 4 unit will prepare pupils for the work on the circulatory system in year 6.
	<u>Knowledge Content</u> Know that the study of humans and animals is called **biology** Know that this derives from the Greek root bios meaning 'life' and logy meaning 'the study of'. <u>Digestive System</u> Know that digestion is breaking down food so that it can be used by the body. Know that the mouth, oesophagus, liver, stomach, small intestine and large intestine and rectum are all

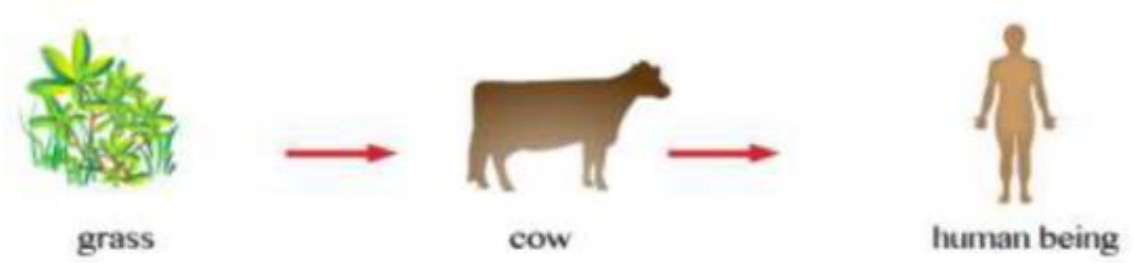
Understand the special functions. Compare the teeth of carnivores and herbivores. Find out what damages teeth and how to look after them. **Focus** Identify and name the parts of the human digestive system. Know the functions of the organs. Know the different types of teeth humans have and their functions. Use and construct food chains to identify producers, predators and prey.	organs involved in digestion. Know what the functions of each part are: <u>Mouth-</u> Know that teeth bite your food, breaking it into smaller bits. Know that the tongue keeps moving the food around the mouth. Know that this **saliva** moistens food, making it easier to swallow. <u>Oesophagus-</u> Know that the **oesophagus** is a muscular tube that leads to the stomach. Know that the method by which food is moved is called **peristalsis**. <u>Stomach-</u> Know that the stomach is a stretchy muscular bag about the size of a tennis ball when it's empty, but expands to the size of a football to store a large meal. Know that the stomach releases digestive juices that break down the food, killing harmful **bacteria.** Know that the stomach muscles help to mix and break the food down by churning it around. <u>Small intestine-</u> Know that partially digested food arrives in the intestine from the stomach. Know that in the small intestine all the 'goodness' is taken out of the food. Know that the small intestine is 6.5m long and just 3cm wide. <u>Liver-</u> Know that the liver is the largest **internal organ** and has about 500 different jobs. Know that blood carries **nutrients** to the liver from the small intestine. Know that the liver gets rid of **toxins** (substances that can be harmful to the body) and releases **glucose** (to give you energy). <u>Large Intestine-</u> Know that the large intestine's job is to soak up water from the leftover food. <u>Rectum-</u> Know that the remaining waste, called **faeces**, travels to the **rectum** ready for when you go to the toilet. Know where each part is located in the human body. Know how to label the digestive system-

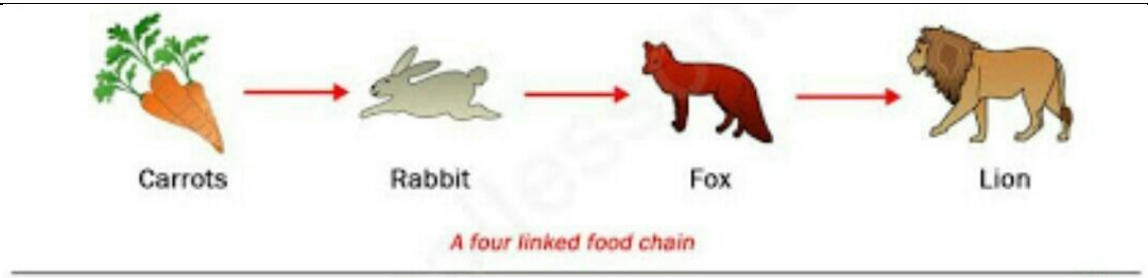


<u>Teeth</u>
Know that our first teeth are called milk teeth
Know that between 6- and 12-years old milk teeth are replaced by permanent teeth.
Know that children have 20 teeth.
Know that adults have 32 teeth.
Know that there are 12 molars, 8 premolars, 4 canines and 8 incisors.
Know that the outer layer of a tooth is called **enamel.**

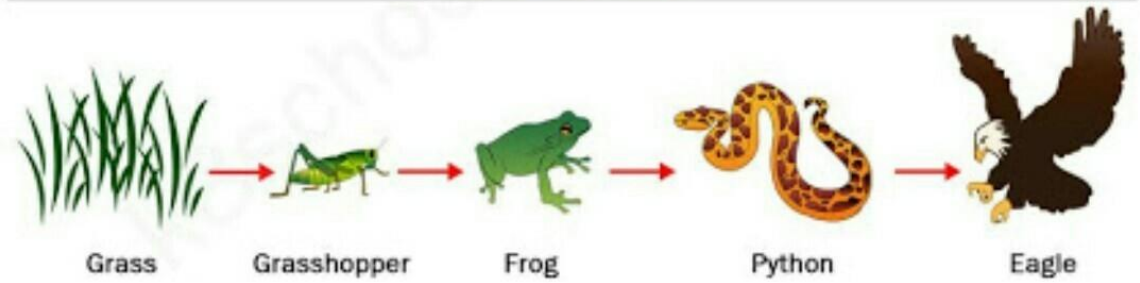
Know that different teeth have different jobs:
Incisors: the front teeth help bite off chunks of food to be broken down.

	Canines: pointed teeth designed to rip and tear meat and fish. **Premolars and Molars:** flatter, thicker teeth at the back of the mouth designed to crush and grind food. Know that adults get 4 **wisdom** teeth and that these can be removed by a dentist if they become painful. Know that we need to look after our teeth by brushing twice a day for 2 minutes. Know that we need to use toothpaste to protect against tooth **decay**. Know that you can use mouthwash and dental floss to look after your teeth. Know where the different types of teeth are:  <u>Food Chains</u> Know that a food chain is a series of living things linked to each other because each thing feeds on the one next to it. Know that a food chain always starts with a **producer**. Know that in a food chain the arrow means 'is eaten by'. Know that all living things need energy to survive. Know that plants use energy form the sun. Know that plants are producers, and create their own food through a process called **Photosynthesis.** Know that animals eat other living things to get their energy. Know that all animals are **consumers**, they eat food rather than produce their own.

	Know that **carnivores** are animals that eat only meat. Know that animals that eat other animals are called **predators.** Know that animals which are hunted and eaten are called **prey.** Know that humans have a diet of animals and plants, so are called **omnivores.** Know that **herbivore**s only eat plants. Know some well-known omnivores are: pigs, rats, and hedgehogs. Know how to construct a food chain. Know some food chains. 



A four linked food chain



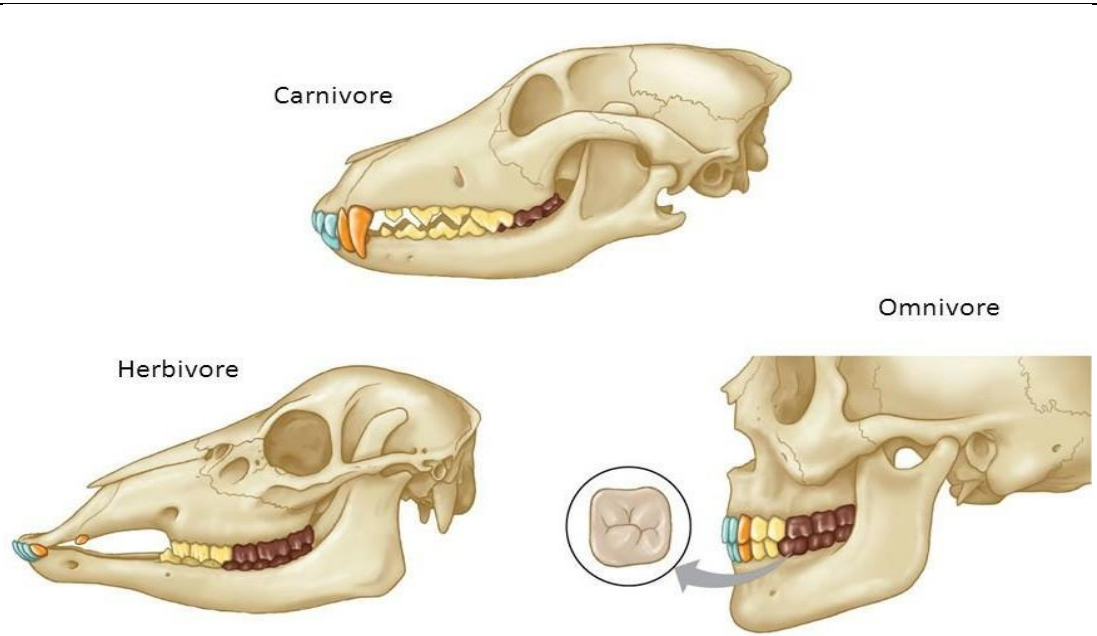
A five linked food chain

<u>WORKING SCIENTIFICALLY</u>

Compare the teeth of humans with carnivores and herbivores.

Know that carnivores eat only meat. Their teeth have more canines as they will rip and tear food more. e.g., Lion's teeth.

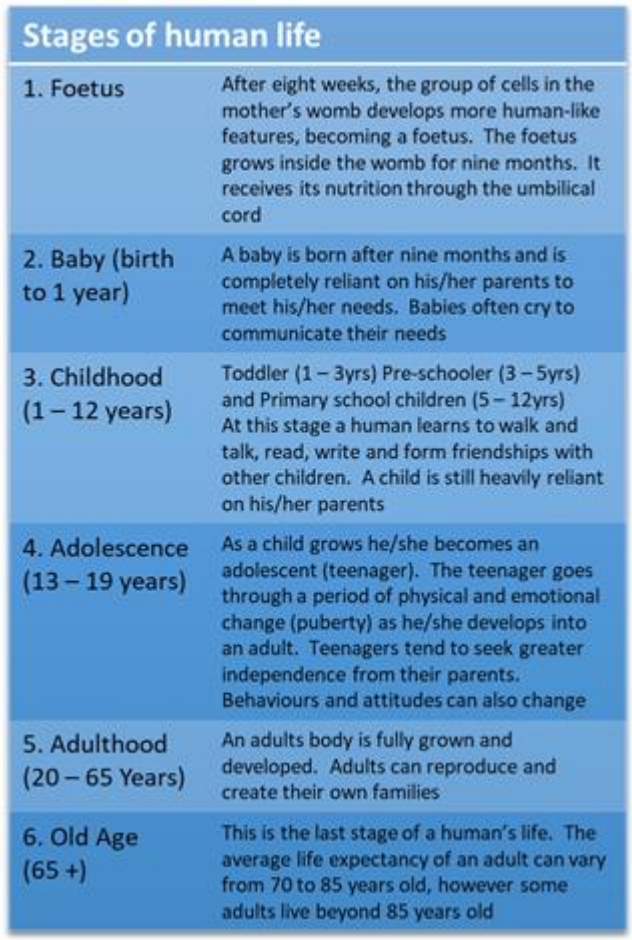
Know that herbivores eat only plants. Their teeth have more molars as they grind and break down vegetation more. e.g., Zebra's teeth.

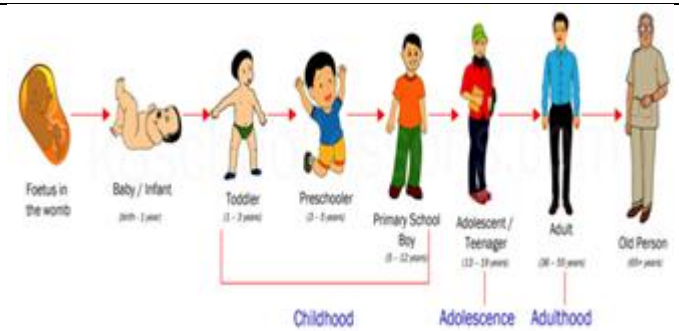
	
	<u>STEAM opportunities</u> -Invite a dentist/dental nurse/dentistry student in to class -create a video about the digestive system -Sketch skulls of carnivores, omnivores, and herbivores -Visit a museum to look at exhibits on the human body
	<u>Outcome</u> Topic Test 1 Tooth decay investigation
	<u>Reading Link</u> Wolves
	<u>Scientist/Inventor</u> William Beaumont
Approved Resources	Switched on Science CGP

	BBC Bitesize

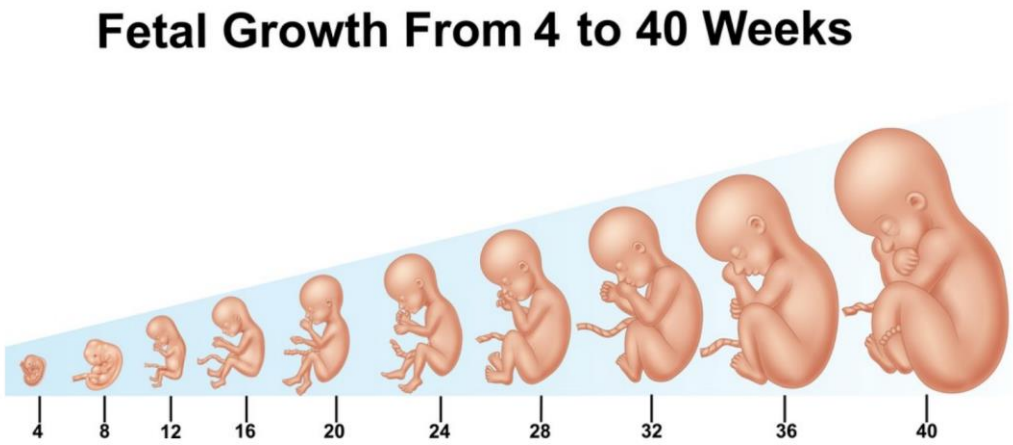
Year 5 Term Autumn 1	**Unit Title: Animals including humans**
NC Objectives	**Key Knowledge Content**
Describe the changes as humans develop to old age **Non-statutory notes** Draw a timeline Puberty Gestation periods Length and Mass of a baby as it grows **Focus** Create a timeline to indicate stages of growth in humans	<u>Context of Study</u> This unit of animals including humans is studied by children in each year group as part of the science discipline biology- the study of living organisms. Pupils have secure knowledge of life cycles and what animals including humans need to survive and thrive. Pupils can use classification keys and interpret food chains, know that humans have skeletons and muscles for support, protection and movement. Pupils will also have learnt previously about healthy lifestyles, the digestive system and the functions of teeth in humans. In this Year 5 unit, pupils will learn about the changes a human goes through as they develop over their lifetime. Pupils describe the changes from foetus to old age and will draw a timeline to indicate the stages of growth and development. New learning will involve finding out about the gestation periods and life expectancy of different species of animals. This unit will then continue in year 6 where children will learn about the circulatory system and the impact of exercise on the body.
	<u>Knowledge Content</u> Know that the study of humans is called **biology** Know that this derives from the Greek root bios meaning 'life' and logy meaning 'the study of'. **Recap of characteristics of living things (revision from Living things and habitats in Autumn 1)** Know that all living things have the following 7 characteristics – Movement, Respiration, Sensitivity, Growth, Reproduction, Excretion and Nutrition Know that this can recalled using the mnemonic - MRS GREN Refer to work on life cycles in Autumn 1 to build on to life cycles of humans. **MRS GREN** M Movement

	R Respiration S Sensitivity G Growth R Reproduction E Excretion N Nutrition <u>Stages of Development</u> Know that humans follow 6 stages of **development** over their life time Know that development means the **gradual** growth or formation of something. Know that an **embryo** is the unborn offspring developing from conception up to 8 weeks. Know that a **foetus** is an unknown offspring of a mammal/unborn human more than 8 weeks after conception. Know that **infancy** is a time of babyhood or early childhood. Know that the word **offspring** means a person's child or children or an animals' young. Know that they are:

	 Know how members of your family fit into this framework Know that the average **life span** in the UK is 82 Know that over long periods of time the life span of people in the UK has increased due to improvements in health care and standards of living. Know how to draw a timeline of the stages of human development



Know that a foetus grows over time in the womb and increasingly looks more baby-like



Link to content from school nurse on puberty

<u>Gestation Periods of animals</u>

Know that nearly all mammals are **viviparous** - they give birth to live young rather than laying eggs

Know that animals including humans develop in the womb before they are born.

Know that the length of time that animals take to develop in the womb is called the **gestation** period.

Know that this comes from the Latin word ‘gestare’ which means ‘to carry’.
Know that the gestation **period** is different in different **species** of animals.

Know the following gestation periods

Gestation period of animals

The length of time it takes for an animal to grow in its mother’s womb varies. This is known as a gestation period. For some animals, the gestation period is much longer than for others.

Animal	Gestation (in days)	Gestation in months	Average life span (in years)
Elephant	669	22	65
Giraffe	450	15	25
Human	267	9	82
Chimpanzee	237	8	45
Tiger	100	4	60
Cat	62	6	14
Hamster	16	2 weeks	3

Know that, generally, the larger the animal the longer the gestation period.
Know that generally, the larger the animal the longer the life span.
Know that animals that live in zoos are expected to live longer because there are no **predators** (revision of y4 unit)

Know that these gestation periods are **averages** and that sometimes this period is longer and shorter.

Know that there are a number of changes as adults move into old age.

	Know that older people need a different diet to stay **healthy**, they may keep their teeth throughout old age, they need to exercise, they can learn new information. Know that some older people suffer from **severe** memory loss (become **senile**) Know that some older people have difficulty in moving around and may use a walking stick or frame. Know that the **immune system** becomes weaker in old age and it is more difficult for the body to fight off illness. Know that the immune system defends people against germs and **microorganisms** every day. In most cases, the immune system does a great job of keeping people healthy and preventing infections. But sometimes problems with the immune system can lead to illness and infection. <u>WORKING SCIENTIFICALLY</u> Describe the changes as Humans develop and compare to how they have changed.
	<u>STEAM opportunities</u> -Invite the school nurse in to discuss puberty -Visit an elderly care home to interview them, take part in activities with them -Upload a photo to change their face to that of an older person (growmeup.com)
	<u>Outcome</u> Topic Test 1 Record height/age in a graph
	<u>Reading Link</u> Can I build another me?
	<u>Scientist/Inventor</u> Eva Crane
Approved Resources	Switched on Science CGP BBC Bitesize

Year 6 Term Autumn 1	**Unit Title: Animals including humans**
NC Objectives	**Key Knowledge Content**

Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. Describe the ways in which nutrients and water are transported within animals, including humans. **Non-statutory notes** Understand how the circulatory system enables the body to function. Learn how to keep their bodies healthy and how their bodies might be damaged. Explore scientific research about the relationship	<u>Context of Study</u> This unit of animals including humans is studied by children in each year group as part of the science discipline biology- the study of living organisms. Pupils have secure knowledge of life cycles and what animals including humans need to survive and thrive. Pupils can use classification keys and interpret food chains, know that humans have skeletons and muscles for support, protection and movement. Pupils will have learnt previously about healthy lifestyles, the digestive system and the functions of teeth in humans. Previous knowledge also includes the changes a human goes through as they develop over their lifetime. The school nurse will also have delivered sessions on puberty. In this Year 6 unit, pupils will develop their knowledge of a healthy lifestyle including a balanced diet. New learning will help pupils to recognise the impact of diet, exercise, lifestyle and drugs on their bodies and how they function. Pupils will identify and name the main parts of the human circulatory system, describe the functions of the heart, blood vessels and blood along with describing the ways nutrients and water are transported around their bodies. Children will then, in KS3, continue to learn about the human body as part of the discipline of biology. <u>Knowledge Content</u> Know that the study of humans and animals is part of the discipline of biology. Know that biology is the study of living organisms. Know that this derives from the Greek root bios meaning ‘life’ and logy meaning ‘the study of’. <u>Circulatory System</u> Know that the **circulatory system** transports substances around the body. Know that the circulatory system circulates blood around the body. Know that the circulatory system is made up of – the heart, blood vessels, veins, arteries, capillaries, blood, oxygen, lungs. Know the vocabulary and the definitions-

between diet, exercise, drugs, lifestyle and health

Focus
Identify and name the main parts of the human circulatory system.

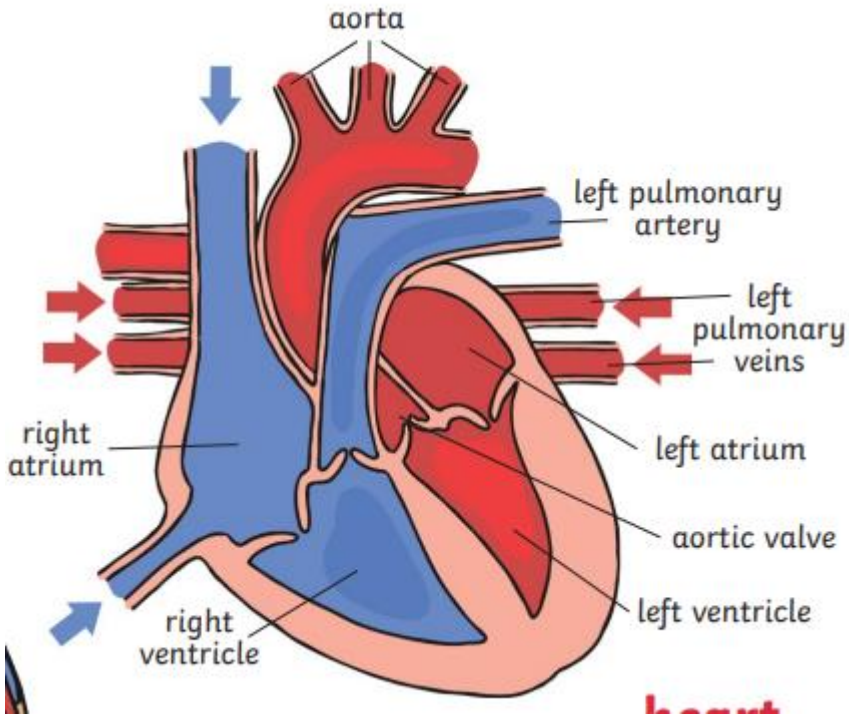
Know the function of the heart, blood vessels and blood.

Know the impact of diet, exercise, drugs and lifestyle on health.

Know the ways in which nutrients and water are transported in animals including humans.

Circulatory system	A system which includes the heart, veins, arteries and blood transporting substances around the body
Heart	An organ which constantly pumps blood around the circulatory system
Blood vessels	The tube-like structures that carry blood through the tissues and organs. Veins, arteries and capillaries are the three types of blood vessels
Oxygenated blood	Oxygenated blood has more oxygen. It is pumped from the heart to the rest of the body.
Deoxygenated blood	Deoxygenated blood is blood where most of the oxygen has already been transferred to the rest of the body
Drug	A substance containing natural or man-made chemicals that has an effect on your body when it enters your system
Nutrients	Substances that animals need to stay alive and healthy
Oxygen	A colourless gas that exists in large quantities in the air. All animals need oxygen in order to live.
Carbon dioxide	A gas produced by animals and people breathing out
Blood	A red fluid that is pumped by the heart through the arteries and veins, supplies tissues with nutrients and oxygen.

Know that the heart is a pump.
Know that the heart is approximately the size of a fist.
Know the heart is located in the centre of the chest slightly to the left.
Know that mammals have hearts with four **chambers**.

	Know that two chambers are called **atria** and two are called **ventricles** Know how to label a diagram of the heart.  Know that **deoxygenated** blood flows in to the heart from the body through the veins. Know that the heart pumps blood to the lungs to get oxygen through the **pulmonary artery.** Know that blood is **oxygenated** in the lungs and is then pumped around the body. Know that blood returns to the heart through the **pulmonary vein.** Know that oxygenated blood is pumped out of the heart through the **aorta**. Know that **capillaries** are the smallest blood vessels in the body and it is here that the exchange of water, nutrients, oxygen and carbon dioxide takes place. Know that arteries carry oxygenated blood away from the heart.

	Know that veins carry deoxygenated blood toward the heart. Know that blood is red when it is oxygenated and blue looking when it is deoxygenated. Know that oxygenated means to be **enriched** with oxygen. Know that deoxygenated means to be **depleted** of oxygen. <u>Diet, Exercise, Drugs, Lifestyle</u> Know that diet can impact on lifestyle as fatty rich foods can clog arteries and veins, preventing blood from delivering what is needed. Know that exercise can improve the health of a person by removing fatty deposits from the body. Know that some exercises are called cardiovascular, and are designed to improve the fitness of the overall circulatory system by strengthening the organs and pulse rate. Know that having little exercise and poor diet will have a negative effect on the body. Know that taking certain drugs such as cocaine can cause permanent damage to the circulatory system. <u>WORKING SCIENTIFICALLY</u> Take measurements of pulse rate before and after a range of exercises. Make predictions as to what will happen. Record results in a line graph.
	<u>STEAM opportunities</u> -Invite a secondary school science teacher in to do an activity with the class -Dissect a heart -Invite or visit a pharmacist to find out about the safe use of medicines -Look at microscope pictures of blood cells and platelets and then create collages, patterns, and prints from observations
	<u>Outcome</u> Topic Test 1 Children can use the data from John Orr's work to write a report.
	<u>Reading Link</u> Pig Heart Boy
	<u>Scientist/Inventor</u>

	Alexander Fleming
Approved Resources	Switched on Science CGP BBC Bitesize