Science Progression of Knowledge	**Year 1**	**Topic**: Animals Including Humans	
National Curriculum Objectives:	**Essential Vocabulary:**	**Substantive Knowledge:** - children MUST know this by the end of the unit	**Working Scientifically Objectives:**
• 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	• Names of animal groups: **fish, amphibians, reptiles, birds, mammals.** • Animal diets: **carnivore, herbivore, omnivore.** • Human and animal body parts: e.g. body, head, neck, arms, elbows, legs, knees, face, ears, eyes, nose, hair, mouth, teeth, hands, feet, tail, wings, feathers, fur, beak, fins, gills. • Human senses: **sight, hearing, touch, smell, taste.** • Exploring senses: loud, quiet, soft, rough. Other: human, animal, pet.	• There are many different animals with different characteristics • Animals need food to survive (carnivores, omnivores and herbivores). • Animals need a variety of food to help them grow, repair their bodies, be active and stay healthy. • Animals move in order to survive. • Exercise keeps animal's bodies in good condition and increases survival chances. • Animals have senses to help individuals survive. • When animals sense things they are able to respond	• Use a Venn diagram to sort animals to show which are herbivores, carnivores and omnivores. • Use a tally chart to gather data and information. • Use information gathered in tally charts • Carry out my own research using simple sources to find out what a particular animal needs in order to survive.
Prior Knowledge:	**Future Knowledge:**	**Working at Greater depth:**	**Science Enquiry/Key Questions:**
In Early Years children should: • be able to identify different parts of their body. • Have some understanding of healthy food and the need for variety in their diets. • Be able to show care and concern for living things. • Know the effects exercise has on their bodies. • Have some understanding of growth and change. • Can talk about things they have observed including animals	**In year 2 children will learn:** • 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	• Can they begin to classify animals according to a number of given criteria? • Can they point out differences between living and non-living things? • Can they name some parts of the human body that cannot be seen? • Can they say why certain animals have certain characteristics? • Can they name a range of wild animals?	• What do animals eat? • Do all animals eat the same food? • Which of our senses is the most accurate at identifying food? • Do all animals hunt? • Why are animals different colours and patterns? • Is our sense of smell better when we cannot see? • How does my height change over the year?

Science Progression of Knowledge	**Year 2**	**Topic**: Animals Including Humans

National Curriculum Objectives:	**Essential Vocabulary:**	**Substantive Knowledge:** - children MUST know this by the end of the unit	**Working Scientifically Objectives:**
• 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	• Being born and growing: **Young, offspring, live young**, grow, **develop,** change, hatch, lay, fly, crawl, talk. • Young and adult names: e.g. lamb and sheep, kitten and cat, duckling and duck. • Life cycle stages: e.g. baby, toddler, child, teenager, **adult**; frogspawn, tadpole, froglet, frog. • Survival and staying healthy: basic needs, survive, food, air, **exercise, diet, nutrition**, healthy, balanced diet, **hygiene, germs.** • Food groups: fruit and vegetables, proteins, dairy and alternatives, carbohydrates, oil and spreads, fat, salt, sugar. Previously introduced vocabulary: **water.**	• All animals eventually die. • Animals reproduce new animals when they reach maturity. • Animals grow until they reach maturity and then don't grow any larger. • Life cycles vary between different animals	• Carry out my own research using simple sources to find out what a particular animal needs in order to survive.

Prior Knowledge:	**Future Knowledge:**	**Working at Greater depth:**	**Science Enquiry/Key Questions:**
In Year 1 children should: • 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	**In Year 3 children will learn:** • 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	• Can they explain that animals reproduce in different ways?	Do all animals grow and live the same way? • Do bigger animals live longer? • Why are we all different heights? • How and why do we grow and change? • Do bananas make us run faster? • Which offspring belongs to which animal? • How does a tadpole change over time? • How much food and drink do I have over a week? • What food do you need in a healthy diet and why?

Science Progression of Knowledge	**Year 3**	**Topic**: Animals Including Humans	
National Curriculum Objectives:	**Essential Vocabulary:**	**Substantive Knowledge:** - children MUST know this by the end of the unit	**Working Scientifically Objectives:**
• 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	• Food groups and **nutrients**: fibre, fats **(saturated and unsaturated)**, vitamins, minerals. • Skeletons and muscles: skeleton, **muscles, tendons, joints,** protection, support, organs, voluntary muscles, involuntary muscles, biceps, triceps, contract, relax, bone, cartilage, shell, **vertebrate, invertebrate,** endoskeleton, exoskeleton, hydrostatic skeleton. • Names of human bones: e.g. skull, spine, backbone, vertebral column, ribcage, pelvis, clavicle, scapula, humerus, ulna, pelvis, radius, femur, tibia, fibula. • Other: **energy**. Previously introduced vocabulary: movement.	• Many animals have skeletons to support their bodies and protect vital organs. • Muscles are connected to bones and move them when they contract. • Movable joints connect bones	• Classify a variety of foods into different food groups. • Carry out my own research to find out what foods different animals eat, and record findings. • Generate questions to investigate to find out what pets eat. • Gather data in a tally chart and convert the results into a pictogram. • Use data to draw conclusions and find the answer to my question. • Label a diagram of the human skeleton. • Use a variety of sources of information to find out how invertebrates protect themselves and report findings. • Ask and answer questions about muscles. • Make different movements with my body and explain which muscles are used.
Prior Knowledge:	**Future Knowledge:**	**Working at Greater depth:**	**Science Enquiry/Key Questions:**
In Year 2 children should: • 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	**In Year 4 children will learn:** • 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	• Can they explain how the muscular and skeletal systems work together to create movement? • Can they classify living things and non-living things by a number of characteristics that they have thought of? • Can they explain how people, weather and the environment can affect living things? • Can they explain how certain living things depend on one another to survive?	• How do the skeletons of different animals compare? • How does our skeleton change over time? • Why do animals have skeletons? • What is a healthy diet and why is it important? • How do we move? • Why do we need a skeleton? • What types of skeleton are there? • Are all skeletons the same? • Can something survive without a skeleton?

Science Progression of Knowledge	**Year 4**	**Topic**: Animals Including Humans	
National Curriculum Objectives:	**Essential Vocabulary:**	**Substantive Knowledge:** - children MUST know this by the end of the unit	**Working Scientifically Objectives:**
• describe the simple functions of the basicparts of the digestivesystem in humans • identify the different types of teeth in humansand their simple functions • construct and interpret a variety of food chains, identifying producers, predators andprey	• Digestive system: **digest**, digestion, tongue, teeth, saliva, salivary glands, **oesophagus, stomach,** liver, pancreas, gall bladder, **small intestine,** duodenum**, large intestine, rectum,** anus, faeces, organ. • Types of teeth and dental care: **molar**, **premolar**, **incisor**, **canine**, wisdom teeth, tooth decay, plaque, enamel, baby (milk) teeth. • Food chains and animal diets: decomposer, food web. Previously introduced vocabulary: **producer,** consumer**, prey, predator,** excretion**,** habitat.	• Animals need a variety of foods to help them grow and survive. • Different animals are adapted to eat different foods. Humans require a balanced diet to remain healthy but healthy diets vary depending upon the type of activity that humans do. • Animals have teeth to help them eat. Different types of teeth do different jobs. • Food is broken down by the teeth and further in the stomach and intestines where nutrients go into the blood. The blood takes nutrients around the body. • Nutrients produced by plants move to primary	• Classify a wide variety of animals to show whether they are herbivores, carnivores or omnivores. • Present information about how to keep teeth healthy. • Draw a diagram to show what I think the digestive system looks like and how it works. • Ask a variety of questions about the digestive system and use different sources to find out the answers. • Label a diagram of the digestive system and describe how it works. • Plan and carry out an experiment (making sure it is a fair test) to explore how acid affects the food in our stomachs.
Prior Knowledge:	**Future Knowledge:**	**Working at Greater depth:**	**Science Enquiry/Key Questions:**
In Year 3 children should: • 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	**In Year 5 children will learn:** • describe the changesas humans develop to old age	●• Can they classify living things and non-living things by a number of characteristics that they have thought of? ● Can they explain how people, weather and the environment can affect living things? ● Can they explain how certain living things depend on one another to survive?	• What are the names for all the organs involved in the digestive system? • How can we organise teeth into groups? • Are foods that are high in energy always high in sugar? • Why are teeth important? • What happens to our food? • What is our digestive system? • How does an eggshell change when it is left in

Science Progression of Knowledge	**Year 5**	**Topic**: Animals Including Humans	
National Curriculum Objectives:	**Essential Vocabulary:**	**Substantive Knowledge:** - children MUST know this by the end of the unit	**Working Scientifically Objectives:**
. • describe the changesas humans develop toold age	• Process of reproduction: **gestation, asexual reproduction, sexual reproduction,** sperm, egg, cells, clone. • Changes and **life cycle:** embryo, foetus, uterus, **prenatal, adolescence, puberty, menstruation, adulthood,** menopause**, life expectancy,** old age, hormones, sweat. • Changing body parts: e.g. breasts, penis, larynx, ovaries, genitalia, pubic hair. Previously introduced vocabulary: reproduction, **reproduce,** types of animals and animal groups, **fertilisation.**	•Humans development is in stages (baby, child, teenager, adult, old age). •During puberty humans experience changes. •Gestation periods are different for different animals.	• Write a report about the development of children from age 0 to 11.
Prior Knowledge:	**Future Knowledge:**	**Working at Greater depth:**	**Science Enquiry/Key Questions:**
In Year 4 children should: • 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	**In Year 6 children will learn:** • 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	● Can they create a timeline to indicate stages of growth in certain animals, such as frogs and butterflies? ● Can they describe the changes experienced in puberty? ● Can they draw a timeline to indicate stages in the growth and development of humans?	• Can you identify all the stages in the human life cycle? •How do different animal embryos change? •Is there a relationship between a mammal's size and its gestation period? •Why and how does the human body change over time?

Science Progression of Knowledge	**Year 6**	**Topic**: Animals Including Humans	
National Curriculum Objectives:	**Essential Vocabulary:**	**Substantive Knowledge:** - children MUST know this by the end of the unit	**Working Scientifically Objectives:**
• identify and name the main parts of the humancirculatory system, and describe the functions ofthe heart, blood vessels and blood • recognise the impact ofdiet, exercise, drugs andlifestyle on the way their bodies function • describe the ways in which nutrients and water are transported within animals, including humans	• **Circulatory system**: circulation, **heart**, pulse, heartbeat, heart rate, lungs, breathing, **blood vessels**, blood, pump, transported, **oxygenated blood, deoxygenated blood,** oxygen, arteries, veins, capillaries, chambers, plasma, platelets, white blood cells, red blood cells. • Lifestyle: **drug, alcohol,** smoking, disease, calorie, energy input, energy output. • Other: water transportation, nutrient transportation, waste products. Previously introduced vocabulary: carbon dioxide.	• Oxygen is breathed into the lungs where it is absorbed by the blood. • The heart pumps blood around the body. • Muscles need oxygen to release the energy from food to do work: Oxygen is taken into the blood in the lungs, the heart pumps blood through blood vessels to the muscles, the muscles take the oxygen and nutrients from the blood	• Plan a clinical trial to explore the effects of different foods on our bodies, explaining how I will make it a fair test and what I expect the results to show. • Allocate a variety of foods to their correct food group. • Assess a variety of food labels to assess which of a group of foods has e.g. the most and least fat, or the most and least carbohydrate. • Use a diagram of the human heart to suggest how it works. • Write a detailed report about how the circulatory system works. • Take my own pulse before and after exercise, recording the differences. • Design an investigation to explore how exercise affects our heart rate and draw conclusions from my results. • Label muscle groups on a diagram of the human body. • Suggest some exercise that would train different muscle groups. • Create a presentation to answer a particular question about drugs, using my own research to find answers
Prior Knowledge:	**Future Knowledge:**	**Working at Greater depth:**	**Science Enquiry/Key Questions:**
In Year 4 children should: • 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 **In Year 5 children should:** • describe the changesas humans develop toold age	**In KS3 children will learn:** • the tissues and organs of the human digestive system, including adaptations to function and how the digestive system digests food (enzymes simply as biological catalysts) • calculations of energy requirements in a healthy daily diet • the consequences of imbalances in the diet, including obesity, starvation and deficiency diseases • the effects of recreational drugs on behaviour, health and life processes.	• Can they compare the organ systems of humans to other animals? • Can they make a diagram of the human body and explain how different parts work and depend on one another? •Can they name and locate the major organs in the human body?	• How does the length of time we exercise for affect our heart rate? • Can exercising regularly affect your lung capacity? • Which type of exercise has the greatest effect on our heart rate? • Which organs of the body make up the circulation system, and where are they found? • How does my heart rate change over the day? • How much exercise do I do in a week?