Animals (including humans) and Variation/Evolution	
EYFS	• Be able to make observations of the natural world • Talk about why things happen and how things work
Year 1 – Animal Survival	Knowledge Block 1- Feeding for survival ● Animals are groups of **organisms** that need to consume food to survive. ● Food provides **energy** and the building blocks of **growth**. ● There are many different groups of animals including **fish, amphibians, reptiles, birds and mammals**. They have different structures, and they eat different types of foods. ● The structure of a variety of common animals varies **Mammals** have hair/fur and give birth to live young, **fish** can breathe underwater using gills, **birds** have feathers, beaks and wings. Females lay eggs. Most birds can fly, **reptiles** are air breathing and have scaly skin and lays eggs, and **amphibians** have smooth slimy skin and live on land and in water. ● Some eat other animals (**carnivores**), and others only eat vegetables (**herbivores**), and some like to eat both plants and meat (**omnivores**) ● Common animals that are **carnivores** include lions, cats, sharks and snakes ● Common animals that are **herbivores** include cows, horses, sheep, elephants and deer ● Common animals that are **omnivores** include humans, bears, monkeys and seagulls Knowledge Block 2- Moving for survival ● Animals must move to get their food ● They will move in different ways to get their food ● Animals that eat other animals are called **predators** ● Animals that are eaten by other animals are called **prey** ● Animals feeding relationships can be illustrated in a **food chain** Knowledge Block 3- Sensing for survival ● The five sense organs are the **eyes** (for seeing), **nose** (for smelling), **ears** (for hearing), **tongue** (for tasting), and **skin** (for touching or feeling). ● Animals have senses to help them survive ● Animals have developed a range of ways to find prey or avoid being eaten
Year 1 - Habitats	Knowledge Block 1- Adapted to survive ● There is variation in all living things ● Animals and plants live in a variety of different places called habitats ● Animals and plants have adapted to survive in different habitats ● Wild plants such as ferns, daisies, nettles and dandelions grow randomly. ● Garden plants such as roses, tulips, poppies, daffodils are planted intentionally. Knowledge Block 2- Plants adaptations for survival ● Plants have specific adaptations for survival ● To survive they need to get water, light, and avoid being eaten
Year 1 - Seasons	Knowledge Block 1- Surviving the changing seasons • There are four seasons, **Spring, summer, autumn** and **winter** • Each season is about three months long

	• In Spring, young animals like lambs and chicks are born, the flowers bloom and the weather starts to become warmer. • In autumn, the leaves fall off the trees and the amount of time we have in the day becomes less. • Winter has the shortest amount of time during the day and the weather is at its coldest. • In summer the trees are full of green leaves and the weather is at its warmest. • Animals and plants have adapted ways of surviving the changing seasons • These include **hibernating**, storing food, fattening up, **migration**, loss of leaves • Trees can be either **evergreen** or **deciduous**. • **Evergreen** trees keep their green leaves all year round. • **Deciduous** trees lose their leaves every autumn.
Year 1 - Plants	Knowledge Block 1- Where do plants come from • A **seed** contains a miniature plant that can develop into a fully grown plant. • A **bulb** has underground vertical shoots which already has modified **leaves** • Seeds and bulbs need water to grow but most do not need light (**germination**) • Seeds and bulbs have food stores inside them to help the plant start to grow. Knowledge Block 2- Plant survival • To survive plants, need to get water, light, and avoid being eaten Knowledge Block 3- How plants get what they need to survive • A seed produces **roots** to allow water to get into the plant. • A seed produces **shoots** to produce leaves to collect the sunlight. A basic plant structure can include leaves, flowers (blossom), petals, fruit, roots, bulb, seed, trunk, branches, stem
Year 1 STICKY KNOWLEDGE	• Know a variety of common animals including fish, amphibians, reptiles, birds and mammals • Know and identify a variety of common animals that are carnivores, herbivores and omnivores • Know what is meant by predators and prey • Know that animals and plants live in a variety of places known as habitats • Know what plants need to survive • Identify, name, draw and label the basic parts of the human body and what they do • Know a variety of common wild and garden plants • Know there are four seasons: spring, summer, autumn and winter • Know the weather associated with the seasons • Know how animals and plants survive the changing seasons

Year 2 – Animal Life Cycles	Knowledge Block 1- Animal timelines ● Things that are **living**, move, feed, grow, **reproduce** and use their senses ● Animals grow until they reach **maturity** and then don't grow any larger ● Animals **reproduce** when they reach maturity (adulthood) ● All animals eventually, **die** ● Different animals live to different ages ● Different animals reach different sizes before they are able to reproduce ● Different animals reproduce at different ages ● Animals, including humans, have **offspring** which grow into adults ● Exercise, eating the right amounts of different types of food and **hygiene** are important to maintain good **health** and **wellbeing** Knowledge Block 2- How animals get their food ● **Habitats** are places where animals and plants live (from Year 1) ● Animals live in habitats in which they are suited. ● Different kinds of animals and plants depend on each other within **habitat**. ● Animals get their food from plants and other animals. This can be shown in a **food chain**. ● A food chain begins with a **producer**. This is often a green plant because plants can make their own food. ● A living this that eats other plants is called a **consumer**.
Year 2 – New Plants	Knowledge Block 1- What flowers are for ● All **flowering plants** make seeds (**reproduction**) that can grow (**germinate**) into new plants ● Plants need water, light and a suitable temperature to grow and stay healthy Knowledge Block 2- What happens after a plant has produced seeds ● Some plants die after it has produced its seed and sometimes the plant lives for many **generations** producing seeds each year
Year 2 STICKY KNOWLEDGE	● Know the differences between things that are living, dead, and things that have never been alive ● Know a variety of animals and plants found in different habitats ● Know how animals obtain their food from plants and other animals ● Know animals, including humans, have offspring which grow into adults

Year 3 – Animals, skeletons and movement	Knowledge Block 1- Skeletons protect vital organs • All **vertebrates** have internal **skeletons** that protect **vital organs**. • **Invertebrates** have **exoskeletons** that protect **vital organs**. Knowledge Block 2- Skeletons support weight • Skeletons support the weight of land animals. • Stronger bones can **support** a greater **mass**. Knowledge Block 3- Skeletons support movement • Bones are **connected** (but can move relative to each other) at joints. • **Muscles** connect to bones and move them when they **contract**. • Stronger bones can **anchor** stronger muscles.
Year 3 – Plants and their food production	Knowledge Block 1- Plants don't go to McDonalds • Plants do not eat food so have to make their own. • This food provides then with energy, and materials to grow • To make the food (sugar) plants need water from the ground, **carbon dioxide** from the air and light from the sun. o The water is taken up through the **roots** from the **soil** o The carbon dioxide is taken in through the **leaves** • As well as food, plants also make **oxygen** which is given out back into the air through the leaves
Year 3 STICKY KNOWLEDGE	• Know that skeletons protect vital organs • Know that skeletons support weight and movement • Know how water is transported within plants • Know what plants need to make food

Year 4 - Digestion	Knowledge Block 1- Food groups o Animals need a variety of foods to help them grow and survive. The main food groups are: • Meat, dairy and pulses provide protein for muscles. • Grains and root vegetables provide carbohydrates for energy. • Fat for insulation and energy. • Fruit and vegetables for minerals, vitamins and fibre. These are essential to keep our bodies working well and protect us from illnesses. Knowledge Block 2- Variation in animals' diet • Different animals require different foods to survive. • Animals get their food from plants and other animals. This can be shown in a food chain. (From Year 2) • A food chain begins with a producer. This is often a green plant because plants can make their own food. (From Year 2) • A living this that eats other plants is called a consumer. (From Year 2) • Humans require a balanced diet to remain healthy but healthy diets vary depending upon the type of activity that humans do. • Humans have 2 sets of teeth in their lifetimes • Humans have three main types of teeth- incisors, canines and molars. • Incisors help to bite off and chew pieces of food. • Canines are used for tearing and ripping food. • Molars help to crush and grind food. Knowledge Block 3- How humans digest food • The nutrients in food have to get to every part of the body. The blood transports them. The role of digestion is to get the nutrients in food to dissolve in the blood, if it doesn't dissolve it can't enter the blood and be transported.
Year 4 – Living Things	Knowledge Block 1- Classifying living things • Living things can be divided into groups based upon their characteristics • Classification keys help group, identify and name living things • Animals can be classified as vertebrates (having a spine) or invertebrates (lacking a spine) • In any habitat there are food chains and webs where nutrients are passed from one organism to another when it is eaten • If the population of one organism in the chain or web is affected, it has a knock-on effect to all the others Knowledge Block 2- Life cycles • Mammals, amphibians, insects and birds have different life cycles.

	• Lifecycles vary in time depending on the species of animal- it can be as short as just a few weeks for insects, to up to 200 years for sea urchins. Larger animals often have longer life cycles but not always. • All animal life cycles begin with growth and development followed by reproduction. • Some animals undergo a complete **metamorphosis** as they grow. Metamorphosis is a process where animals undergo an abrupt and obvious change in the structure of their body and their behaviour. • Some animals are eusocial. This means they live in colonies (groups) with one animal or group producing young and the others working to care for them. Knowledge Block 2- Environmental change • **Environmental change** affects different habitats differently • Human activity significantly affects the environment Different organisms are affected differently by environmental change
Year 4 – Plant Reproduction	Knowledge Block 1- The reproductive parts of a flowering plant • Flowering plants **reproduce** by the process of **pollination** • Pollination leads to the formation of a **seed** which can grow into a new plant • Flowering plants have evolved specific parts to carry out pollination and seed growth • Those parts are **stamen** where pollen is produced, **stigma** where pollen is collected, and the **ovaries** which contains the eggs that become a seed when the pollen travels down the stigma and meets the egg • Flowers have **petals** also are a range of colours, patterns, and smells to attract insects Knowledge Block 2- All flowers are similar but different • Plants and flowers look different because they pollinate in different ways. • There are two types of pollination Insect and wind • Insect pollinated flowers are usually bright coloured and strong scents • Wind pollinated flowers have less colourful petals and much less scent Knowledge Block 3- Seed dispersal • Plants have evolved many different ways to **disperse** their seeds • Seed dispersal increases the chances of seeds **germinating** and growing into a mature plant Knowledge Block 4- What a seed does • A seed contains a miniature, undeveloped version of the plant • They contain a food store for the first stage of growth (until the plant can make its own food) • They are surrounded with a protective coat.
Year 4 STICKY KNOWLEDGE	• Know animals need a variety of foods to grow and survive • Know the names of the main food groups: meat, dairy, protein, carbohydrates, fats, fruit and vegetables

	• Know the different types of teeth in humans and their simple functions • Know the simple functions of the digestive system in humans • Know the reproductive parts of a flowering plant • Know that living things can be grouped in a variety of ways •

Year 5 – Fossils, Geological Time and Classification	Knowledge Block 1- What is evolution and how do we know it happened? ● The Earth is very old. Around 4.2 billion years. We know this from dating rocks ● Life first appeared on Earth around 3.8 billion years ago. ● Life was, at first, very simple but over millions and millions of years life became more complex through the process of evolution Knowledge Block 2- Evidence for evolution ● There are many sources of evidence for evolution ● Fossils are one of the main sources of evidence for evolution. They show when new organisms appear and when they go extinct. ● Due to the nature of fossil formation and discovery, fossils only provide an incomplete record of evolution. ● Scientists use fossils along with other pieces of evidence *(DNA, Embryology, comparative anatomy, artificial selection)* to work out how organisms have evolved ● Fossils form when dead organisms are rapidly buried or leave an imprint and are turned to stone over a long period of time. If they survive in the Earth, they then have to be found by a palaeontologist who will study them. Knowledge Block 3: Classification of life ● All living (and extinct) organisms are classified into groups based upon their physical features. ● This includes animals, plants, fungi, and microorganisms like bacteria. ● Within each of these broad groups, organisms are classified into small subgroups. Animals- invertebrates, mammals, birds, amphibians, reptiles and fish, Plants- flowering plants, ferns, conifers, moss. ● Bacteria are a group of organisms that are not visible to the naked eye but are very abundant and have distinct physical features we can only see under powerful microscopes.
Year 5 - Circulation	Knowledge Block 1: Getting oxygen into the blood • All animals need oxygen to survive. • Air is breathed into the lungs where the oxygen in the air is passed into the blood. • Every part of animals' bodies need oxygen, especially muscles. • Muscles need a supply of oxygen and sugar (glucose) to make them work, they are supplied by the blood. Knowledge Block 2: The blood circulation model • The heart is a vital organ pumps blood through the blood vessels. • Blood Vessels are the tubes that blood flows through. • The blood circulates around the body in a way that ensures all muscles in the body get a supply of oxygen and sugar. • The heart pumps blood to every muscle in the body. The circulatory route must allow the blood to collect oxygen from the lungs, sugar from the intestines and visit muscles.

	• The blood then returns to the heart where it is pumped again. • Exercise helps the heart to work more efficiently. • Eating a healthy diet helps to keep the blood vessels from getting blocked. • Avoiding smoking and alcohol puts less stress on the whole system and keeps it healthier.
Year 5 – STICKY KNOWLEDGE	• Know how fossils are formed and how scientists use them • Know how all living and extinct organisms are classified into groups based on their physical features. • Know what the circulatory system does

Year 6 – Classification and Evolution	Knowledge Block 1: Natural selection • Evolution is the change of physical form in a population over a long-time span • Natural selection is the process which controls that change. • In any population there is variation and competition for resources (food, water, mates). • Within that variation, organisms that have features which make them better adapted at securing food, water, and mates, are more likely to survive and produce offspring which have inherited those same successful features. Those that are not well adapted will eventually go extinct. • Over a long enough timeline all organisms in a population will have those successful features. • This is known as the *Theory of Evolution by Natural Selection* and was developed by Charles Darwin in 1859 Knowledge Block 2: How Charles Darwin discovered the process of Evolution by Natural selection • Before Darwin, Lamarck's Idea of acquired characteristics was proposed. (Giraffes stretch their necks in life, which made their children have longer necks). Darwin as a young man travelled around the world on the HMS Beagle. On this 5-year voyage he saw lots of things and recorded down lots of evidence which allowed him to work out how organisms change over time by a different mechanism of Natural selection
Year 6 – STICKY KNOWLEDGE	• Know that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago • Know that natural selection is the process which controls the change over time • Know that living things produce offspring of the same kind but normally offspring vary and are not identical to parents • Know what is meant by adaptation • Know what is meant by evolution • Know who Charles Darwin was and his key discoveries