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	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Animals Including Humans	The 5 senses are sight, sound, taste, touch, smell	Our bodies are made up of some basic body parts. These are head, ears, eyes, nose, mouth, neck, shoulders, arms, hands, legs, feet, toes. As we age these body parts change by getting bigger, longer and stronger Humans have 5 senses: see, smell, hear, taste, touch/feel Humans hear with their ears Humans see with their eyes	All animals change as they grow from young to old. egg, chick, chicken; egg, caterpillar, pupa, butterfly; spawn, tadpole, frog; lamb, sheep A human life cycle: baby, toddler, child, teenager, adult Animals need water, food and air to survive. When we eat food it does three things: 1. It helps us to grow. 2. It gives us energy 3. It helps to protect us against illness.	Animals can be grouped and named by what they eat (carnivore, herbivore, omnivore) Herbivores only eat plants (e.g cows, horses, sheep, elephants, deer) Omnivores eat both plants and meat, including insects (e.g humans, bears, monkeys, seagulls). Carnivores mainly like to eat meat, including insects (e.g lions, cats, sharks, snakes, wolves) Humans cannot create their own foods but gain nutrition by what they eat	The digestive system is a group of organs which work together to turn food and liquids into the fuel that the body needs. The food we eat is too big to get into the body, so the digestive system needs to break the food down so that it can be absorbed into the blood and taken to where it needs to go. Plants don't have digestive systems because they make their own food. The parts of the digestive system are:	As humans age, their bodies change. This is the human life cycle. Young humans are dependent on their mother for a longer time period than any other living thing. Humans can start to reproduce when puberty starts during adolescence. Humans can reproduce until late adulthood. In old age, the body becomes more fragile and there is less growth.	All cells need oxygen from the air and nutrients from the food we eat in order to function. The blood transports the oxygen and the nutrients around the body and delivers them to every cell in the body. Blood is made up of three types of cells. Red blood cells, white blood cells and platelets The circulatory system involves two organs in the body: the lungs and the heart. The circulatory system ensures that the blood delivers oxygen from the air

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		Humans feel with their hands/feet/skin Humans taste with their mouth/tongue Humans smell with their nose Sometimes our sense our impeded by different factors (e.g distance, illness) Animals are grouped into the following five groups: fish, amphibians, reptiles, birds and mammals. Humans are mammals Mammals: have hair/fur; give birth to live young Amphibians: live on land and in water; lay eggs; have moist	It is best to try and eat lots of fruit and vegetables. Sugary treats are okay sometimes. It is important to drink lots of water. Exercise keeps our muscles strong and helps our heart stay healthy. Exercise also makes us feel happy. We keep our bodies clean so that we kill any germs which may make us ill. That doctors and nurses have an important job to keep us healthy. It takes many many years to train to be a doctor or a nurse	Humans need to maintain a balanced diet of carbohydrates, vegetables, protein and fruit Inside the human body, there are bones, muscles and organs. Bones support our body and help us move. Muscles help bones to move. Organs each have a particular job to do. The brain, heart and lungs are examples of organs. The skeletal system is made up of our bones. The job of the skeletal system is to support and protect	mouth - food enters the body here teeth - cut up and grind food tongue - mixes food and saliva salivary glands - produces saliva to soften food in the mouth oesophagus - the path from the mouth to the stomach stomach - here, acid breaks food down and mix it up small intestine - absorbs nutrients from food and passes waste on to large intestine large intestine - absorbs water from waste food		and nutrients from our food to every cell in the body. You can think of the circulatory system like a loop - a loop which never stops! The circulatory system also ensures that waste products, like carbon dioxide, are transported back to the heart and lungs. The blood flows through different types of tubes: arteries, veins and capillaries. When the oxygenated blood is flowing away from the heart it is travelling through an artery, at high pressure. When the deoxygenated blood is flowing towards the heart it travels

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		skin; have webbed feet Reptiles: have scales; have ear holes; have dry skin Fish; live in water; have fins; have gills and breath under water; lay eggs in the water Birds: have a beak; have wings; have feathers; have 2 legs Animals can be grouped and named by what they eat (carnivore, herbivore, omnivore) Herbivores only eat plants (e.g cows, horses, sheep, elephants, deer) Omnivores eat both plants and meat, including insects (e.g		our body and to help us move. Some common bones in the human skeleton are called: skull, vertebral column (spine), shoulder blade, ribs, pelvis, femur, shin bone. The skeleton can move because it contains joints. The joints are found where two bones meet. They allow the body to move in different directions. Invertebrates either have a exoskeleton (a skeleton on the outside of their body) - e.g a crab - or no skeleton at all - e.g octopus Muscles are attached to the bones in the	rectum - stores stool and tells brain that you need to go to the toilet Humans have teeth to help cut up and grind their food, to make it easier to digest. There are different types of teeth which do different jobs. Incisors are used for biting and cutting food. They are at the front of your mouth. You have eight in total: four at the top and four at the bottom. Canines are used for rubbing and tearing food. They are either side of your incisors and you have four of them. Canine teeth are often pointy, like		through veins, at lower pressure. The heart is controlled by the brain and it is the brain which tells the heart how quickie to beat. If you are relaxing your heart rate will be lower because the cells in your body do not need as much oxygen and nutrients to function. When you exercise, your heart rate increases because the muscles in your body are working much harder and therefore will use more oxygen and nutrients. For this reason, the heart will need to pimp the blood faster around the body. Keeping the heart healthy is very

		humans, bears, monkeys, seagulls). Carnivores mainly like to eat meat, including insects (e.g lions, cats, sharks, snakes, wolves)		body by strong cords called tendons. Muscles work by contracting (getting shorter) and relaxing (getting longer)	the teeth of a dog or a wolf. Premolars and Molars are towards the back of your mouth. They are bigger and wider than incisors and canines and this is because they are used to hold and crush food. Animals have different types of teeth depending on which foods they eat. A dog is a carnivore. This means that it eats meat. The dog has special back teeth or molars. These are called carnassial teeth. They rip the food into small pieces. The horse only eats vegetation and is a herbivore. It has very		important. Eating a healthy diet rich in fruit and vegetables will keep your heart healthy. This is because fatty deposits can block the arteries and lead to heart problems. Carrying extra weight can also put added pressure on your heart. Exercising regularly helps the heart to become strong. Avoiding smoking, excessive alcohol and the use of drugs will also help your heart to stay healthy.

					long incisors to cut grass and hay. Its molar teeth are very flat. They are used for grinding food. Squirrels have very long and sharp incisors for cutting through the hard shell of nuts.		

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Living things and their habitats	Dinosaurs lived millions of years ago but not in the present. We can see dinosaurs through fossils.		Some things are living, some are dead, and some have never lived. The 7 life processes are: moving, breathing, sensitivity, growing, reproducing (having offspring), pooping and eating Trees are living things. Dogs, cats, fish, snakes, bees and people are also living things. Dry leaves on the ground are dead, but they were once part of a living tree. Bones were once part of a living animal that is now dead. Anything metal, plastic or stone has never been alive A habitat is a natural environment that an animal lives in.		We can group things into living and nonliving. the 7 markers of life are movement, reproduction, sensitivity, nutrition, excretion, respiration, growth We can group living things into plants and animals. Plants could be grouped into flowering and non-flowering. Animals can be split into vertebrates and invertebrates. Vertebrates have a backbone inside their body. Invertebrates do not have a backbone. An invertebrate may have an exoskeleton	Reproduction is when a living thing is making more of themselves. This is very important to living things to maintain their species. Sexual reproduction happens when there is a male and a female. Asexual reproduction happens when one living thing has everything it needs to make more of itself. Life cycles between different living things are very different. Mammals grow inside their mother's womb and are born. They grow as they age. (Rabbit) Female amphibians lay eggs in water.	

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			A habitat provides animals with 3 important things:FOOD, SHELTER and a SAFE PLACE TO RAISE THEIR YOUNG it allows them to carry out the 7 life processes. Some animals and plants rely on each other in the habitat. A microhabitat is a very small part of a larger habitat that has its own temperature, light and creature (eg. under a rock). Many different insects live in a variety of microhabitats best suited for them. Food gives living things **energy**, which		- this is a skeleton on the outside of their body. Vertebrates can be grouped into mammals, reptiles, birds, fish and amphibians. Invertebrates can be grouped into many different categories including arthropods, worms and molluscs. Classification keys use yes/no questions to group or identify living things. To use a classification key, you start with the living thing and answer the yes/no questions. Changes to an environment can endanger living things.	These eggs are outside of the mother's body. The eggs are soft because they are encased in jelly. The eggs develop over time. There is a complete transformation. (Frog) Female insects lay eggs outside of their body. The eggs hatch into larva. A hard case then forms around the larva. This is called the pupa. During this time the insect metamorphoses into an adult. This is a complete transformation (butterfly) Female birds lay eggs outside of their bodies. The eggs have a hard shell. The	

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			they use to carry out the other life processes, like moving and growing. Each food chain starts with a green plant. Green plants are called **producers** because they **produce** their own food using energy from the sun. All animals are called **consumers** because they **consume** their food by eating plants and other animals. Animals that eat other animals are called **predators.** The animals that they eat are called **prey.**		Human beings can change an environment. This can be a positive or negative change. Positive changes are, for example, building nature reserves, cleaning seas and lakes, picking up litter, or protecting endangered species. Negative changes can be polluting environments with litter or chemicals, or cutting down trees. New housing developments can have a negative effect on the environment, but developers can help by designing green spaces.	eggs hatch. The chick grows as it ages. The life cycles are all different for example: Insects and amphibians transform completely as they age. The young do not look like the adults. Amphibian and insect eggs are soft. Bird eggs are hard shelled. Amphibian, insect and bird eggs are outside the body. Mammals grow young inside their body. Mammals change as they grow. Some plants reproduce asexually. Plants which grow from bulbs reproduce asexually because all	

						the energy needed is stored in the bulb. Potato plants reproduce asexually because they grow tubers, which are a bit like roots. The tubers grow into new plants the following Spring. Strawberry and Spider plants reproduce asexually because they grow runners, which grow into new plants. When plants reproduce asexually, the baby plant is exactly the same as the parent plant. It is a clone. When plants reproduce sexually, the male part of the flower (pollen produced in the stamen) fertilises the	

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						female part of the flower (ovule) and new seeds grow inside the ovule. Pollination is when pollen is moved from the male stamen to the female ovule. This can happen using pollinators (insects) or by wind. Natural science is concerned with understanding, predicting, and researching things that occur naturally on earth and in the universe. Natural scientists use data from experiments and observation to draw provable conclusions.	

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Plants	A plant grows from the ground Plants need water and light to survive	Flowers and trees are plants. There are lots of different types of plants, flowers and trees. We can name parts of plants and trees. Daisy, buttercup, dandelion, bluebell, nettle, rose, sunflower, daffodil, thistle, tulip, ivy, clover. The parts of a plant are: petals, stem, leaves and roots. The parts of a tree are: roots, trunk, branches and leaves. A trunk is woody and often has a layer of bark around it.	Plants grow from seeds and bulbs. Plants need water, sunlight and the right temperature to grow. Seeds come in all shapes and sizes. Seed dispersal is how seeds are carried away from the plant that made them, so that plants grow in lots of different places. All seeds have a hard outer coat, a baby plant inside and food for the baby plant. Bulbs are plants that grow underground, but their flowers are visible above ground When the plant begins to grow, we call this germination.	Every part of a plant has a job to do. Water transportation is the way water moves through a plant. The roots anchor the plant in the ground. The roots absorb water and nutrients from the soil. Branches, leaves and flowers grow from the stem or trunk. The stem or trunk holds the plant up. It also carries water and nutrients from the roots to the leaves. The leaves make food for the plant using			

			The seed is planted and watered. The hard outer coat splits. A root grows downwards A shoot grows upwards. The shoot grows into the leaves, flower and fruit. Some plants, like daffodils, tulips and bluebells grow from bulbs. Bulbs are bigger than seeds. To grow, plants need water, sunlight and the right temperature. If they do not have one or more of these, they will not grow.	sunlight and carbon dioxide from the air. Flowers are brightly coloured to attract insects and birds. To grow, plants need water, sunlight, the right temperature, nutrients from the soil and room to grow. If the seed is not warm enough, it will not germinate. If a plant does not have enough light, it will grow to be tall and flimsy as it searches for light. It will probably die. If a plant is not watered enough, its stem will become very fragile and its			

				leaves will be dry. It will probably die. Water transportation is the way water moves through a plant. The roots absorb water from the soil. The stem transports water to the leaves. Water evaporates from the leaves. This evaporation causes more water to be sucked up the stem. The water is sucked up the stem like water being sucked up through a straw. Flowers attract bees and insects. This is important because bees and insects carry pollen from one flower to another. When the pollen			

				reaches another flower a new seed is formed. The seed is then moved to somewhere new and grows. Seed dispersal is when the seed is moved. Seed dispersal can happen in the following ways: the plant shaking in the wind, pollen getting stuck to insects, bees and animals, animals or birds eating the flowers and then pooing it out somewhere else, pollen travelling in water			

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Evolution and inheritance							Life on earth is the result of 3.5 billion years of evolution. When living things reproduce they pass on characteristics to their offspring. This is known as inheritance. All living things produce offspring of the same kind, but normally offspring are not identical to

							their parents; there are variations that make them different. Inherited traits are passed through genes. Some genes are dominant. Some genes are recessive. Evolution is the process by which small changes in organisms occur over long periods of time and new species are formed. Evolution can happen through selective breeding or by natural selection The theory of evolution and natural selection was first developed by Charles Darwin and further supported by the

							findings of Alfred Wallace Adaptations is a trait (or characteristic) changing to increase a living thing's chances of surviving and reproducing. Foxes are an example of a species that has adapted depending on its extreme environment (e.g desert fox vs arctic fox vs red fox) Camels adaptations: long eye lashes (to keep sand out); nostrils which can close (to keep sand out); can go a week or more without water/can drink up to 46 litres in one go;

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							When the brown bear was forced to leave its environment, it was not adapted to its new environment. Generation after generation, offspring were born with characteristics that made them better adapted to their environment. The brown bear evolved into the polar bear. Current humans are Homo Sapiens and have evolved and adapted over years. An era is a geographical term that refers to a period of time between extinction events Extinction is when a species is no longer alive on earth. This

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							can be caused by new predators, competition for food, climate change and disease. A fossil is evidence found in rocks of living things that existed millions of years ago. Body fossils represent the actual remains of an animal or plant. Trace fossils are traces of ancient living things. Examples include footprints, burrows and poo. Trace fossils tell us about the lives of ancient living things. We are able to determine how old a fossil is by how far in the ground it is found. Newer fossils will be found above

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							older fossils and this helps us date them. Palaeontology is the study of ancient life, from dinosaurs to prehistoric plants, mammals, fish, insects, fungi, and even microbes. Fossil evidence reveals how organisms changed over time and what our planet was like long ago

Pre-key stage learning outcomes