The Whinless Down Academy Trust
Progression in knowledge of Biology
(Animals including humans and Living things and their habitats)

Level Expected at the End of EYFS - *We have selected the Early Learning Goals that link most closely to the Science National Curriculum.*

Early Learning Goals –
The Natural World
Explore the natural world around them, making observations and drawing pictures of animals and plants;
Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class;
Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.
Managing self
Manage their own basic hygiene and personal needs including dressing, going to the toilet and understanding the importance of healthy food choices.

Knowledge - The names of young farm animals - calf, piglet, chick, lamb. Cows give us milk. Hens give us eggs. Animals are food for some people. Some foods are good for us and help to keep us healthy and to grow. Some foods are treats and we should not eat too much of these. We need to keep our bodies clean. We need sleep to help us grow. We need to brush our teeth. We need to exercise.

Vocabulary - *calf, cow, piglet, pig, chick, hen, lamb, sheep, clean, wash, sleep, grow, brush, teeth, exercise, germs*

Possible misconceptions - Eggs in a supermarket might hatch. Tadpoles are fish.

	National Curriculum	Knowledge	Vocabulary
Year 1	Children can identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. Children can identify and name a variety of common animals that are carnivores, herbivores and omnivores. Children can describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) Children can identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.	There are different types of animals including insects and these can be grouped. We can **classify** animals based on their similarities. **Mammals -** gives birth to live young. Usually have hair or fur. Are **warm-blooded** and cannot breathe underwater. Humans are **mammals.** **Fish** -have fins and scales. Breathe underwater using gills. Lay eggs in water and are cold-blooded. **Birds** have wings, feathers and beaks. Are warm blooded and lay eggs. **Reptiles** – have scales and are cold blooded. Lay eggs and cannot breathe underwater. **Amphibians** -live on land and water. Can breathe underwater through gills. Lay eggs and are cold-blooded. Some animals eat meat **(carnivores),** some eat plants **(herbivores)** and some eat both plant and animal **(omnivores)** Humans and animals use the five **senses** to understand the world around them. We see with our eyes. We hear with our ears. We smell with our nose. We touch with our hands and feet. We taste with our tongue in our mouth. Parts of our bodies have names -head, feet, arms, legs, nose, eyes, ears, mouth, tongue.	Birds, fish, amphibians, reptiles, mammals and insect Feathers, scales, gills, fins, hair, land, water, carnivores, herbivores, omnivores Meat, plants Names of animals that can be found in our locality Classify Warm blooded Cold blooded senses

Possible misconceptions: Only four-legged mammals, such as pets, are animals. Humans are not animals. Insects are not animals. All birds fly. All 'bugs' or 'creepy crawlies', such as spiders, are part of the insect group. Amphibians and reptiles are the same.			
Year 2	Children can notice that animals, including humans, have offspring which grow into adults. Children can find out about and describe the basic needs of animals, including humans, for survival (water, food and air). Children can describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.	A **life cycle** is the series of changes that an animal or plant passes through from the beginning of its life until its death. Animals, including humans, have offspring which grow into adults. All animals need water, air, food and shelter to survive. To keep healthy, humans need: To eat a **balanced diet** and healthy food (the eat well plate). To limit the amount of sugars and fats in our diet Some exercise to keep their **muscles and bones** healthy To take medicines that are given to them by doctors and nurses when feeling poorly. To keep good **hygiene** by washing regularly, having clean clothes, brushing teeth and hair	**Classification** – birds, fish, amphibians, reptiles, mammals and invertebrates **Stages of growth** –egg, larva, pupa, adult **Amphibians** – including newt (specific to our locality) **Stages of life** – baby, toddler, child, teenager, adult **Life processes** – growth, nutrition, breathe (respiration) **Hygiene** – clean, wash, germs **Foods** – healthy, grow, strong, energy Muscles, bones
Possible misconceptions: An animal's habitat is like its 'home.' All animals that live in the sea are fish. Respiration is breathing. Breathing is respiration.			
Year 3	Children can 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. Children can identify that humans and some other animals have skeletons and muscles for support, protection and movement.	Animals get **nutrition** from what they eat. There are six essential **nutrients** that the body needs to function properly. Each nutrient helps our bodies in different ways. **Carbohydrates** – for energy **Fats** – helps the body absorb certain vitamins. **Proteins** – for growth and repair, **Vitamins and minerals** – to keep our bodies working and help our immune system **Water** – enables our bodies to carry out all of its functions during the day. Animals cannot make their own food. Animals need a balance of the right type of nutrients. Animals can be grouped by their diet. Skeletons provide support and protection. **Muscles** enable us to move. **Muscles** work in pairs to contract or relax. There are different types of skeleton (endoskeleton and exoskeleton)	Nutrition, diet carbohydrates, fats, proteins, vitamins, minerals, water **Functions of skeletons** – protect, support and aid movement Muscles – contract, relax Immune system, skeletal system
Possible misconceptions: Certain whole food groups like fats are 'bad' for you. Certain specific foods, like cheese are also 'bad' for you Diet and fruit drinks are 'good' for you Snakes are similar to worms, so they must also be invertebrates Invertebrates have no form of skeleton.			

Year 4	Children can describe the simple functions of the basic parts of the digestive system in humans. Children can identify the different types of teeth in humans and their simple functions. **Living things and their habitats** Children can construct and interpret a variety of food chains, identifying producers, predators and prey.	Humans digest food. The **digestive system** is made up of organs that break down food into nutrients, which the body needs for **energy, growth and repair.** The basic parts of the digestive system are: salivary glands, mouth, oesophagus, stomach, small intestine, large intestine, rectum. **Salivary glands**: The smell of food triggers the salivary glands to produce saliva. Saliva contains enzymes which start to break down the food we eat. **Oesophagus**: Is a muscular tube that transports food from the mouth to the stomach. Muscles contract and relax to move food down the oesophagus to the stomach. **Stomach**: Is a hollow, muscular bag that contains acids and enzymes which breaks the food down further. Muscles in the stomach mix the food. **Small intestine:** The small intestine absorb nutrients from the food into the blood. **Large intestine:** It absorbs excess water from the indigestible waste to make solid faeces. **Rectum:** Stores stool passed to it from the large intestine. Makes brain aware of need to go to the toilet. **Incisors** are shovel-shaped. Used for biting, chopping and cutting food. **Canines** are pointy and sharp. Used for tearing and ripping food. Holding and crushing food. **Premolars** are between the canine teeth and the molars. Used for holding, crushing, chewing and grinding. **Molars** are at the back of the mouth behind the premolars. They are wider and stronger than premolars. Used for holding, crushing, chewing and grinding. A **food chain** shows how plants and animals get their **energy.** It always starts with a **producer.** This is an **organism** that makes its own food. Most food chains start with a green plant because plants can make their food by **photosynthesis.** A living thing that eats other plants and animals is called a **consumer.** A **predator** is an animal that eats other animals. The animals that predators eat are called **prey**. Predators are found at the top of a food chain.	**Digestive system** – salivary glands, mouth, teeth, tongue, oesophagus, stomach, small intestine, large intestine, rectum, enzymes, acid, organ, faeces, indigestible **Teeth -** canine, incisor, premolar, molar, wisdom **Food chain** – producer, consumer, predator, prey, energy, organism
Possible misconceptions: Arrows in a food chains mean 'eats.' The death of one of the parts of a food chain or web has no, or limited, consequences on the rest of the chain. There is always plenty of food for wild animals. Your stomach is where your belly button is. Food is digested only in the stomach. When you have a meal, your food goes down one tube and your drink down another. The food you eat becomes 'poo' and the drink becomes 'wee.'			
Year 5	Children can describe the changes as humans develop to old age. **Living things and their habitats** Children can describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. Children can describe the life process of reproduction in some plants and animals.	For mammals the **gestation** period is the time in which a foetus develops, beginning with **fertilization** and ending at birth. The duration of this period varies between **species.** Humans change as they grow. Often these changes are too small to notice on a daily basis. These changes include acne, facial hair, skin appearance. Babies and children continue to grow in different ways until they reach adulthood. There are six stages in the human life cycle. 1. **Foetus**, at this time a baby is growing inside its mother's womb.	Gestation, foetus, fertilisation, species, baby toddler, child, childhood, adolescent, adolescence, adult, adulthood, elderly person, puberty, hormones, testosterone, oestrogen, reproduce

		2. **Baby**. A baby is born after spending nine months inside the womb. It is completely helpless and totally dependent on parent. Muscles are weak and uncoordinated. It changes very quickly. **Toddler** (1 – 3 years old) starts walking and talking. It grows rapidly. 3. **Child**. It starts school and learns to read. It learns lots of new skills e.g. football, ride a bike 4. **Adolescent**. It starts developing into an adult in the way they think and feel. 5. **Adult**. The body is fully developed. Body is strongest. Brain is at its most alert. Able to reproduce. 6. **Old age**. Skin wrinkles because it becomes thinner and less elastic. It gets drier too as it makes less oil and sweat. Inside the body the bones and muscle become weaker. Memory gets worse and the immune system cannot fight disease as easily. Female bodies change: breasts grow, periods begin, hips widen. These changes are usually start between ages 8 and 13. These changes are caused by the hormone **oestrogen.** Male bodies change: voices crack and deepen, shoulders widen and facial hair starts to grow. These changes are caused by the hormone **testosterone.** Some changes are different and some are the same: both begin to grow hair under their arms and around pubic areas. **Acne** may come with puberty caused by all the hormones in the body. As children enter **puberty**, the sweat glands are stimulated. Sweat and Bacteria together, cause body odour. The **life cycles** of **mammals, birds, amphibians and insects** have similarities and differences. One difference is that amphibians and insects go through the process of **metamorphosis.** This is when the structure of their bodies changes significantly as they grow (for example, from tadpole to frog or caterpillar to butterfly).	**Classification** – birds, fish, amphibians, reptiles, mammals and invertebrates Metamorphosis **Life processes** – growth, nutrition, respiration, movement, sensitivity, excretion, reproduction
Possible misconceptions: A baby grows in a mother's tummy. A baby is 'made.'			
Year 6	Children can identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. Children can recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. Children can describe the ways in which nutrients and water are transported within animals, including humans. **Living things and their habitats**	The **circulatory system** is made of the heart, lungs and the blood vessels. The heart is a **muscle** that pumps blood around the body. Nutrients are carried in the blood to the different parts of the body that need them. **Arteries** carry **oxygenated blood** from the heart to the rest of the body. **Veins** carry **deoxygenated blood** from the body to the heart. **Nutrients, oxygen and carbon dioxide** are exchanged via the **capillaries.** The heart is composed of **four chambers**: the right atrium, right ventricle, left atrium and left ventricle. Red blood cells carry oxygen around the body. White blood cells protect against disease and infection. Platelets help the blood to clot and repair a cut.	**Circulatory system** – heart, right atrium, left atrium, right ventricle, left ventricle, blood, veins, arteries, capillaries, pulse, white blood cells, red blood cells, plasma, platelets, de-oxygenated, oxygenated, muscle, organ **Diet** – balanced, vitamins, minerals, proteins, carbohydrates, sugars, fats

	Children can describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences. Children can give reasons for classifying plants and animals based on specific characteristics.	Plasma is a liquid and solid. It carries water and important nutrients around the body. What we put in our bodies affects how our body functions too much of any substance can cause side effects. Some choices, such as smoking and drinking alcohol can be harmful to our health. When we **exercise**, the rate of breathing increases as our bodies use more oxygen. **Tobacco** can cause short-term effects such as shortness of breath, difficulty sleeping and loss of taste and long-term effects such as lung disease, cancer and death. Alcohol can cause short-term effects such as addiction and loss of control and long-term effects such as organ damage, cancer and death A **food web** is a series of **organisms** related by predator-prey and consumer-resource interactions; the entirety of interrelated food chains in an ecological community. A living thing that eats other plants and animals is called a consumer. Scientists sort and group living things according to their similarities and differences. This is called classification. Scientists who classify living things are called taxonomists. Animals can be classified according to common **characteristics.** Key features to distinguish between animals: o Vertebrate or invertebrate o Mammal, Reptile, Fish, Amphibian, Bird, Insect o Colour o Length o Number of Legs, Body Segments o Habitat	**Drugs** – caffeine, nicotine, alcohol, cannabis, cocaine, heroine **Food web**, food chain, predator, prey, Apex predator, producer, consumer, organism **Classification** – birds, fish, amphibians, reptiles, mammals and invertebrates characteristics

Possible misconceptions:
Your heart is on the left side of your chest.
The heart makes blood.
The blood travels in one loop from the heart to the lungs and around the body.
When we exercise, our heart beats faster to work the muscles more.
Some blood in our bodies is blue and some blood is red
We just eat food for energy.
All fat is bad for you.

Previously taught – Remains Key Vocabulary, Revisit

Links to other Science programmes of study.