Reception	**<u>Understanding the World – Children in Reception – Children will be able to:</u>** - Explore the natural world around them. - Describe what they see, hear and feel whilst outside. - Recognise some environments that are different to the one in which they live. - Understand the effect of changing seasons on the natural world around them. - Recognise some similarities and differences between life in this country and life in other countries. **<u>Early Learning Goals:</u>** - 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.
Year 1	**<u>Everyday Materials –</u>** Children will revisit learning about everyday materials from the EYFS. They learn what materials are and begin identifying and classifying them in their immediate environment. Children will learn about and identify natural and human-made materials. They will then group and sort a range of natural and human-made materials, asking questions about how they are made and look for patterns in their properties. Children will further explore the properties of materials, before identifying and classifying them. Children will learn about Venn diagrams, what they are used for and how to create them. They then perform a simple comparative test; testing materials for their properties, before displaying and interpreting their results. Children will develop their observational skills, as well as measuring, recording and observing changes to materials over time. **<u>Human Senses –</u>** Children will learn that humans are living things belonging to a group of animals called mammals. They learn that all animals, including humans, use their senses to stay alive. Children will learn that humans have some similarities and differences. They will label a diagram of the human body and identify common body parts. They will observe the number of body parts they have and learn how to record findings in a table. Children revisit and build on learning from EYFS about the five senses. They will conduct simple investigations to support their understanding of using senses in their environment to stay safe. **<u>Seasonal Changes -</u>** Children will revisit learning from EYFS about the four seasons and typical weather associated with each season. They will learn about, identify and classify 'evergreen' and 'deciduous' trees. They also learn how animals respond to seasonal changes and look for patterns in typical seasonal behaviours. Children will learn about different types of weather and will observe changes over time. They will build on their

	knowledge of day and night and begin to understand why we have seasonal differences in daylight hours. Children will interpret simple charts to answer questions about day length and will carry out a comparative test. They will learn about the Beaufort Scale, observing, recording data in a block graph, and answering questions. Children will measure temperature using thermometers, interpreting, and looking for patterns in data. They will also learn how to measure the volume of rainfall using rain gauges. They will use this information to generate questions and conduct simple investigations and research. **Plant Parts –** Children will build on their understanding about plants as living things and will identify and classify wild plants. They will learn plant parts and differences between garden and wild plants, drawing labelled diagrams. Children will learn how seeds and bulbs grow new plants. They will be able to identify and classify seeds and bulbs, sorting and grouping them and looking for patterns between groups. They learn the parts of leaves and conduct a simple test to compare leaves. Children ask questions about the importance of plants for animals, using research to answer their questions. **Animal Parts –** Children will build on their knowledge about human senses. They learn about processes that define all living things, including growth, nutrition, and sensitivity to the environment and the six animal groups (amphibians, birds, fish, invertebrates, mammals and reptiles). They explore specialised animal body parts and identify and classify animals into the six groups by creating Carroll diagrams. Children will learn about carnivores, herbivores and omnivores and their characteristic features. They will sort and classify animals into the three groups and record their findings.
Year 2	**Human Survival –** Children will have revisited learning from Y1 projects, *Human Senses* and *Animal Parts*. They will have linked previous learning about human timelines from the project *Childhood*, to new learning about life cycles. They will construct life cycle diagrams, identifying the stages and processes and how humans change over time. Children will link their knowledge about the needs of pets from *Animal Parts* (Y1), to identify the needs of humans for survival by collecting and displaying data. Children will learn about food groups and balanced, healthy diets. They will know the importance of regular exercise; good hygiene and they will investigate how to improve fitness over time. **Habitats –** Children will revisit learning from Y1 projects *Human Senses*, **Plant Parts,** and *Animal Parts*. They will learn what a habitat is and what a habitat provides for plants and animals that live there. They will be able to identify living things using the seven life processes and sort non-living things into two groups; those that have lived and those that have never lived. Children will be able to identify plants and animals by observing physical characteristics, research animals and record their findings in a

	table. They will have learned about food chains and animal adaptation. They will have completed tables, constructed food chains, answer questions, draw conclusions, and compare similarities and differences between animals and habitats. **Uses of Materials –** Following on from Y1 project *Everyday Materials*. Children will be able to identify and classify materials and describe properties that make them suitable or unsuitable for a particular use. They will draw labelled diagrams to identify objects' materials. They will have investigated and compared paper types. Children will learn how to live more sustainably and generate scientific questions linked to materials, recycling, and sustainability, which they answer through research. **Plant Survival –** Children will revisit parts of plants and trees from the projects Seasonal Changes and Plant Parts. They will observe seasonal changes in plants, identify and classify plants in their locality and identify plant features. They will have conducted a simple comparative test and observe changes over time. Children will compare and look for patterns in where plants grow outdoors and then predict the needs of plants. They will carry out a comparative test, explore plant variation, ask questions, and research carnivorous plants, succulents, and aquatic plants. **Animal Survival –** Following on from Autumn project Habitats. Knowing what habitats are, what they provide and extending their learning to explore and understand microhabitats. They will examine local microhabitats, identify, and classify living things, including invertebrates and record using tally charts and block graphs. They will build on the concept of food chains from the Habitats project by researching and drawing food chains for a selected animal and its microhabitat. They learn how humans can impact habitats and look for opportunities to support habitats and living things in the school grounds. Children learn about reproduction for all living things, as well as parent and offspring relationships. They extend this by learning about life cycles. They observe life cycles of an insect, asking questions, making observations, and witnessing changes over time. They explore life cycles further by understanding the relationship between the seasons and an animal's life cycle.
Year 3	**Animal Nutrition & the Skeletal System –** By the end of this unit, the children will be able to: • 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. **Forces and Magnets –** By the end of this unit, the children will be able to:

	• compare how things move on different surfaces. • notice that some forces need contact between 2 objects, but magnetic forces can act at a distance. • observe how magnets attract or repel each other and attract some materials and not others. • compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet and identify some magnetic materials. • describe magnets as having 2 poles. • predict whether 2 magnets will attract or repel each other, depending on which poles are facing. **Plant Nutrition & Reproduction –** By the end of this unit, the children will be able to: • identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. • explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant. • investigate the way in which water is transported within plants. • explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. **Light and Shadows –** By the end of this unit, the children will be able to: • recognise that they need light in order to see things and that dark is the absence of light. • notice that light is reflected from surfaces. • recognise that light from the sun can be dangerous and that there are ways to protect their eyes. • recognise that shadows are formed when the light from a light source is blocked by an opaque object. • find patterns in the way that the size of shadows change. **Rocks** By the end of this unit, the children will be able to: • compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. • describe in simple terms how fossils are formed when things that have lived are trapped within rock. recognise that soils are made from rocks and organic matter.
Year 4	**Food and the Digestive System –** By the end of this unit, the children will be able to: • 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.

Sound –

By the end of this unit, the children will be able to:
- identify how sounds are made, associating some of them with something vibrating.
- recognise that vibrations from sounds travel through a medium to the ear.
- find patterns between the pitch of a sound and features of the object that produced it.
- find patterns between the volume of a sound and the strength of the vibrations that produced it.
- recognise that sounds get fainter as the distance from the sound source increases.

States of Matter –

By the end of this unit, the children will be able to:
- compare and group materials together, according to whether they are solids, liquids, or gases.
- observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C).
- identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.

Grouping and Classifying –

By the end of this unit, the children will be able to:
- recognise that living things can be grouped in a variety of ways.
- explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.
- recognise that environments can change and that this can sometimes pose dangers to living things.

Electrical Circuits and Conductors –

By the end of this unit, the children will be able to:
- identify common appliances that run on electricity.

	• construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches, and buzzers. • identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery. • recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. recognise some common conductors and insulators, and associate metals with being good conductors.
Year 5	**Forces and Mechanisms –** By the end of this unit, the children will be able to: • explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. • identify the effects of air resistance, water resistance and friction, that act between moving surfaces. • recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect. **Earth and Space –** By the end of this unit, the children will be able to: • describe the movement of the Earth and other planets relative to the sun in the solar system. • describe the movement of the moon relative to the Earth. • describe the sun, Earth, and moon as approximately spherical bodies. • use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky. **Human Reproduction and Ageing –** By the end of this unit, the children will be able to: • describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. • describe the life process of reproduction in some plants and animals. • describe the changes as humans develop to old age. **Properties and Changes of Materials –** By the end of this unit, the children will be able to: • compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets.

	• know that some materials will dissolve in liquid to form a solution and describe how to recover a substance from a solution. • use knowledge of solids, liquids, and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. • give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. • demonstrate that dissolving, mixing and changes of state are reversible changes. • explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.
Year 6	**Circulatory System –** By the end of this unit, the children will be able to: • 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. **Electrical Circuits and Components –** By the end of this unit, the children will be able to: • associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. • compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. • use recognised symbols when representing a simple circuit in a diagram. **Light Theory –** By the end of this unit, the children will be able to: • recognise that light appears to travel in straight lines. • use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye.

	• explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes. • use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. **<u>Evolution and Inheritance –</u>** By the end of this unit, the children will be able to: • recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. • recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. • identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. **<u>Classification –</u>** By the end of this unit, the children will be able to: • describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants, and animals. • give reasons for classifying plants and animals based on specific characteristics.