Year 1/2 Science Curriculum		
Autumn **Describing Materials**	**Spring** **Habitats**	**Summer** **Plants**
Children will know by the end of this unit: • How to distinguish between an object and the material from which it is made. • How to identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock. • How to describe the simple physical properties of a variety of everyday materials. • How to identify and compare the uses of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. • Be able to find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching	Children will know by the end of this unit: • *How to Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants and how they depend on each other.* • *How to Identify and name a variety of plants and animals in their habitats, including micro-habitats* • *Be able to describe how animals obtain their food from plants and other animals, using the simple idea of a food chain, identifying and naming different sources of food.*	Children will know by the end of this unit: • How to identify and name a variety of common plants, including garden plants, wild plants and trees. • How to identify and describe roots. • How to identify and describe flowers. • How to identify and describe trunks. • How to describe and identify trees by looking observing their leaves. • How to identify and describe the basic structure of a variety of common plants including roots, stem/trunk, leaves and flowers. • *How to observe how bulbs grow into mature plants.* • *How to observe and describe how seeds grow into mature plants.* • *How to find out and describe how plants need water, to grow and stay healthy.* • *How to find out and describe how plants need light to grow and stay healthy.* *How to find out and describe how plants need a suitable temperature to grow and stay healthy*
Autumn 2 **Animal Survival**	**Spring 2** **Seasons**	**Summer 2** **Living Things and their Environment**
Children will know by the end of this unit: • That animals need food to survive and need to eat different types of food. • The difference between carnivores and herbivores	Children will know by the end of this unit: • Observe changes across the four seasons • Observe and describe weather associated with seasons and how day length varies.	Children will know by the end of this unit: • How animals have to adapt to changes in the environment in order to survive • How plants have to adapt in order to survive – how they get water and the

• How to find out about and describe the basic needs of animals for survival (water/food and air) • How animals have to move in different ways to get their food • How to identify predators and prey • How to explore habitats in the local area to identify where minibeasts live and how to predict what they might eat. • How to create simple food chains. • How animals use their senses to detect where food is. • How animals use their senses to protect themselves from predators. • How animals can avoid being eaten (camouflage) •	• How to create observe these changes • How to work scientifically to produce charts and tables to show information and make comparisons from around the world.	light they need and avoid being eaten or dying when chewed. • How the changing seasons have an impact on plants, which then impacts the animals that eat them. • How animals have adapted ways of surviving when the seasons change and food becomes scare – eg hibernating/storing food/migration.
KS1 Longitudinal Study: How to observe and record how a tree changes over the seasons.		

Year 3/4 Science Curriculum		
Autumn 1 **Animals including Humans - Digestion**	**Spring 1** **Electricity**	**Summer 1** **Animals including Humans – Skeletons and Movement**
Children will know by the end of this unit: • *How to describe the simple functions of the basic parts of the digestive system in humans* • *How to identify the different types of teeth in humans and their simple functions* • *How to construct and interpret a variety of food chains, identifying producers, predators and prey.*	Children will know by the end of this unit: • *How to identify common appliances that run on electricity* • *How to construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers* • *How to 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*	Children will know by the end of this unit: • All vertebrates have internal skeletons that protect vital organs. Invertebrates have exoskeletons that protect vital organs. • Skeletons support the weight of land animals. • Stronger bones can support a greater mass. • Bones are connected (but can move relative to each other) at joints.

	• *How to recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit* • *How to recognise some common conductors and insulators, and associate metals with being good conductors.*	• Muscles connect to bones and move them when they contract. • Stronger bones can anchor stronger muscles.
Autumn 2 **States of Matter**	**Spring 1** **How Plants Pollinate**	**Summer 2** **Sound**
Children will know by the end of this unit: • How to compare and group materials together, according to whether they are solids, liquids or gases • How to 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) • How to identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.	Children will know by the end of this unit: • How to identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers • How to explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal	Children will know by the end of this unit: • How to identify how sounds are made associating some of them with something vibrating. • How vibrations form sounds travel through a medium to the ear. • How to find patterns between 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 produce it. • How to recognise that sounds get fainter as the distance from the sound source increases.
Year 3/4 Longitudinal Study – Observe the weather across the year.		
Year 5/6 Science Curriculum		
Autumn 1 **Properties and Changes of Materials**	**Spring 1** **Light**	**Summer 1** **Forces**
Children will know by the end of this unit: • *How to compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency,*	Children will know by the end of this unit: • *How to recognise that light appears to travel in straight lines*	Children will know by the end of this unit: • *How to explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object*

conductivity (electrical and thermal), and response to magnets • *To know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution* • *How to use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating* • *Be able to give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic* • *Will be able to demonstrate that dissolving, mixing and changes of state are reversible changes* • *Will be to 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.*	• *How to 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* • *How to 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* • *How to use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.*	• *How to identify the effects of air resistance, water resistance and friction, that act between moving surfaces* • *How to recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.*
Autumn 2 **Living Things and Their habitats – classification**	**Spring 2** **Evolution and Inheritance**	**Summer 2** **Animals including Humans – circulation**
Children will know by the end of this unit: • How to describe the differences in the lifecycles of a mammal, an amphibian, an insect and a bird. • How to describe the life process of reproduction in some plants and animals.	Children will know by the end of this unit: • *How 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* • *How to recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents* • *How to identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution*	Children will know by the end of this unit: • *How to identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood* • *How to recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function* • *How to describe the ways in which nutrients and water are transported within animals, including humans.*

The Schools of Woolton Hill

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Cycle B

Year 1/2 Science Curriculum		
Autumn **Animal Lifecycles**	**Spring** **Changing Materials**	**Summer** **Plants**
Children will know by the end of this unit: • How to notice that animals, including humans have offspring which grow into adults. • Explore the differences between things that are living, dead and have never been alive. • How different animals live for different lengths of time • How different animals reach different sizes and ages before they are able to reproduce	Children will know by the end of this unit: • *How to distinguish between an object and the material from which it is made.* • *How to identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock.* • *How to describe the simple physical properties of a variety of everyday materials.* • *How to be able to identify and compare the uses of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.* • *How to find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.*	Children will know by the end of this unit: • *How to observe how bulbs grow into mature plants.* • *How to observe and describe how seeds grow into mature plants.* • *How to find out and describe how plants need water, to grow and stay healthy.* • *How to find out and describe how plants need light to grow and stay healthy.* • *How to find out and describe how plants need a suitable temperature to grow and stay healthy.*
Autumn 2	**Spring 2**	**Summer 2**
Pushes and Pulls	**Changing Materials**	**Making New Plants**
Year 3/4 Science Curriculum		
Autumn 1 **Magnets**	**Spring 1** **Light** •	**Summer 1** **Living Things and Their Habitat**
Children will know by the end of this unit: **Substantive Knowledge (key ideas)** • How to compare how things move on different surfaces	Children will know by the end of this unit: • How to recognise that light appears to travel in straight lines	Children will know by the end of this unit: • That living things can be grouped in a variety of ways.

• How to notice that some forces need contact between two objects, but magnetic forces can act at a distance • How to observe how magnets attract or repel each other and attract some materials and not others • How to 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 • How to describe magnets as having two poles • How to predict whether two magnets will attract or repel each other, depending on which poles are facing	• How to 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 • How to 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 • How to use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. •	• Understand how to explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. • How to recognise that environments can change and that this can sometimes pose dangers to living things.
Autumn 2 **Rocks**	**Spring 2** **How Plants Grow/Make their Food**	**Summer 1** **Mixtures and Separating them**
Children will know by the end of this unit: How to compare and group together different types of rocks on the basis of their appearance and simple physical properties. • How to 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.	Children will know by the end of this unit: • *How to identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers* • *How to 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* • *How to investigate the way in which water is transported within plants* • *How to explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.*	Children will know by the end of this unit: • A substance is an object with the same properties throughout. • A mixture is when more than one substance is present in the same container • When a substance is added to a liquid the substance can disappear- this is called dissolving • A mixture of a substance that has dissolved in a liquid is called a solution • Not every substance can dissolve in water • Mixtures can be separated if the substances have different properties • This is because the substances in the mixture are still present and are unchanged • There are different techniques for separating mixtures •
Year 5/6 Science Curriculum		

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Autumn 1 **Earth and Space**	Spring 1 **Fossils , geological time and classification**	Summer 1 **Electricity**
Children will know by the end of this unit: • *How to describe the movement of the Earth, and other planets, relative to the Sun in the solar system* • *How to describe the movement of the Moon relative to the Earth* • *How to describe the Sun, Earth and Moon as approximately spherical bodies* • *How to use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.*	Children will know by the end of this unit: • 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** • 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. • 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,	Children will know by the end of this unit: • *How to associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit* • *How to 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* • *How to use recognised symbols when representing a simple circuit in a diagram*

	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**.	
Autumn 2 **Earth and Space**	**Spring 2** **Sound**	**Summer 2** **Animals including humans**
Children will know by the end of this unit: • *How to describe the movement of the Earth, and other planets, relative to the Sun in the solar system* • *How to describe the movement of the Moon relative to the Earth* • *How to describe the Sun, Earth and Moon as approximately spherical bodies* • *How to use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.*	Children will know by the end of this unit: • How sounds can be produced in a variety of ways. • That Sounds have the properties of **pitch** and **volume.** • When a sound is produced it spreads out from its source in all directions • Sound is caused by **vibration** (objects move rapidly back and forth or up and down) • When objects vibrate it makes the objects in contact with it also vibrate. This includes the air. • The vibration travels through the air and makes other objects it is in contact with vibrate including your **ear drum**. • Pitch and volume are caused by how the material vibrates • The pitch of a sound is caused by how fast an object vibrates. This is called the **frequency** of vibration. Higher the frequency, higher the pitch • Smaller objects or tighter strings tend to vibrate with a higher frequency • The volume of sound is caused by how big each vibration is. This is called the **amplitude** of vibration. The bigger the amplitude the higher the volume.	Children will know by the end of this unit: • How to describe the changes as humans develop into old age • Use a timeline to record the changes • Understand the changes that occur during puberty

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Disciplinary Knowledge
The disciplinary knowledge builds progressively to enable children to work scientifically and covers the following aspects: • Methods used to answer questions • Using equipment and techniques • Data analysis • Using evidence to develop explanations