Long Term Plan 2021/22 – Science

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
EYFS	**Topic:** All About Me & People Who Help Us	**Topic:** Light and Dark and Celebrations	**Topic:** Winter Wonderland	**Topic:** Living Things	**Topic:** Tradition Tales	**Topic:** Seaside
	Books: Zog Zog and the Flying Doctors Room on the Broom.	**Books:** Rama and Sita Gunpowder Plot Owl babies Kipper's birthday The First Christmas The Nativity story	**Books:** Percy the Park Keeper One Snowy Night Lost and Found	**Book:** What the Ladybird Heard I Don't Want to be a Frog We Are Going on an Egg Hunt The Easter Story	**Book:** Jack and the Beanstalk Jasper's Beanstalk The Three Little Pigs The Three Little Wolves and the Big Bad Pig The Three Billy Goats Gruff The Troll	**Books:** The Lighthouse Keeper's Lunch What the Ladybird Heard at the Seaside The Rainbow Fish Commotion in the Ocean
	Pupils will begin to explore the natural world around them, making observations, and will learn that the five senses are: see, hear, smell, taste and touch. Through observing the natural world, pupils will recognise and name some common woodland animals: hedgehog, squirrel, rabbit, fox, badger etc. Pupils will learn how to be healthy through eating, exercise and daily activities, and observe changes that take place during and after exercise.	Pupils will explore materials and firstly understand that certain materials can be hard/solid/soft. Learning will then progress to investigating and exploring materials to identify a range of features and properties, and how these link to their use. Pupils will learn why certain materials are better to use for different things and purposes.	Pupils will learn the names of some common Polar animals: bear, penguin, arctic fox etc. They will progress to learning more about these animals' features and their habitats. Pupils will learn that there are four seasons (spring, summer, autumn winter) and will learn about the different signs of each season. They will understand some important processes and changes in the natural world around them, including these four seasons. Pupils will gain an early understanding of some materials being reversible. They will notice and talk about what happens to puddles when the temperature is below zero. They will begin to understand that when water gets cold enough it freezes and becomes ice,	Pupils will identify that certain UK animals live in certain habitats / environments (woodland/ farm/sea/ponds) Building on this knowledge, pupils will develop an understanding of how certain animals grow and correctly sequence their growth patterns.	Pupils will learn that a plant is a living thing and will recognise and name the parts of a plant. Building on this knowledge, pupils will learn how to look after plants and notice changes as they grow. They will also learn how certain plants grow and will correctly sequence growth patterns.	Pupils will begin to understand what they can do to help the environment. They will explore the impact humans have had (and continue to have) on animals and their environments. Linking to helping the environment and materials, pupils will apply knowledge of both in order to identify and sort different materials to be recycled.

			and when ice warms up, it melts and changes back to water, linking to changes of states of matter.			

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 1	**Topic:** Humans	**Topic:** Seasonal Changes (Autumn/ Winter)	**Topic:** Animals	**Topic:** Materials	**Topic:** Living things and Habitats	**Topic:** Plants
	Book: But Why Can't I?	**Book:** The Tiger who came to Tea	**Book:** The Gruffalo	**Book:** Rosie Revere, Engineer	**Book:** The Hunter	**Book:** Rainforest Adventure
	Pupils will develop their knowledge of the five basic human senses: see, hear, smell, taste, touch and will ask questions about these. Pupils will explore the different parts of their bodies that are responsible for each sense and investigate and compare different textures, sounds, tastes and smells. Building upon prior knowledge of life cycles, pupils will learn about the different stages within the human life cycle; baby, toddler, child, teenager, adult, elderly adult. Pupils will explore the changes that occur as people move through these stages, including appearance and abilities.	Pupils will further develop their understanding that the United Kingdom has four seasons throughout the year: spring, summer, autumn and winter. Pupils will observe, talk and ask questions about seasonal changes, considering changes in the weather, and will create tables and charts about weather. Pupils will use their knowledge to consider how humans and animals adapt to respond to each season. Pupils will learn that the 12 months within a year are grouped into different seasons. They will observe and describe how day length varies as seasons change.	Through continuing to observe the natural world, pupils will compare and contrast animals, sorting these into groups of: mammals, reptiles, amphibians, birds and fish, based on their characteristics. Pupils will then consider the needs of animals and compare those to previous learning about the needs of humans. Pupils will gain an understanding that animals need water, food, air (oxygen) and shelter to survive and sort animals into groups based on what they eat.	Pupils will build upon their prior knowledge of the properties of materials and learn the names of everyday materials such as wood, metal, plastic, glass and fabric. Pupils will begin to consider and ask questions about where different materials come from. Pupils will describe and compare the physical properties of a variety of everyday materials and distinguish which objects are made from which materials. Pupils will investigate and ask questions about the properties of materials and their suitability for a specific purpose. Pupils will continue to understand the importance of recycling, reusing and reducing and use their knowledge of materials to consider which materials can be reused and recycled. Pupils will further develop their understanding of the properties of everyday materials, such as: being hard, solid, soft, transparent and rigid, and will begin to compare materials based on these.	Pupils will observe that there are different varieties of plants and animals, identifying and naming a variety of plants and animals in their habitats, including microhabitats. Pupils will develop their knowledge of the different habitats that animals need to survive in and ask questions relating to living things and their habitats. Pupils will use their understanding to explain why different animals suit their habitats.	Pupils will develop their knowledge of how plants grow by observing plants grow from a seed. They will use their understanding of this to explain how seeds and bulbs grow into mature plants. Pupils will deepen their understanding of the different parts of a plant, focusing on the roles of the roots, stem, leaves and petals. They will then begin to identify some common plants such as: daisies, roses, daffodils and sunflowers. Pupils will learn about the differences between deciduous and evergreen trees and begin to identify examples of these.

				Pupils will explore how some materials can change their shape by being squashed, bent, twisted or stretched.		

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 2	**Topic:** Humans	**Topic:** Seasonal Changes (Autumn/ Winter)	**Topic:** Animals	**Topic:** Materials	**Topic:** Living things and Habitats	**Topic:** Plants
	Book: But Why Can't I?	**Book:** The Tiger who came to Tea	**Book:** The Gruffalo	**Book:** Rosie Revere, Engineer	**Book:** The Hunter	**Book:** Rainforest Adventure
	Pupils will develop their knowledge of the five basic human senses: see, hear, smell, taste, touch **and will use observational skills to ask and answer questions about these**. Pupils will explore the different parts of their bodies that are responsible for each sense and investigate and compare different textures, sounds, tastes and smells. **Pupils will begin to suggest ways in which their senses can be used to observe and investigate the world around them.** Building upon prior knowledge of life cycles, pupils will learn about the different stages within the human life cycle; baby, toddler, child, teenager, adult, elderly adult. Pupils will explore the changes that occur as people move through these stages, including appearance and abilities.	Pupils will further develop their understanding that the United Kingdom has four seasons throughout the year; spring, summer, autumn and winter. Pupils will observe, talk about and **research** seasonal changes, considering changes in the weather, and will create tables and charts about weather. **They will begin to use information from books and online to support their understanding.** Pupils will use their knowledge of seasons **and prior understanding of the needs of humans and animals** to consider how humans and animals adapt to respond to each season. Pupils will learn that the 12 months within a year are grouped into different seasons. They will observe and describe how day length varies as seasons change.	Through continuing to observe the natural world, pupils will compare and contrast animals, sorting these into groups of: mammals, reptiles, amphibians, birds and fish, based on their characteristics. Pupils will then **further** consider the needs of animals and compare those to previous learning about the needs of humans. Pupils **will research and explain** that animals need water, food, air (oxygen) and shelter to survive and sort animals into groups based on what they eat.	Pupils will build upon their prior knowledge of the properties of materials and learn the names of everyday materials such as wood, metal, plastic, glass and fabric. Pupils will consider and ask questions about where different materials come from **and will then begin to explain which materials are natural and which are man-made.** Pupils will describe and compare the physical properties of a variety of everyday materials and distinguish which objects are made from which materials. Pupils will investigate and ask questions about the properties of materials and their suitability for a specific purpose. **Pupils will sort materials into groups and explain why they have sorted them in that way.** Pupils will continue to understand the importance of recycling, reusing and reducing and use their knowledge of materials to consider which materials can be reused and	Pupils will observe that there are different types of plants and animals, identifying and naming a variety of plants and animals in their habitats, including microhabitats. Pupils will develop their knowledge of the different habitats that animals need to survive in and ask questions relating to living things and their habitats. Pupils will use their understanding to explain why different animals suit their habitats, **considering prior knowledge of what animals need to survive**. **Pupils will then name some of the characteristics of an animal that help it to live in a particular habitat.**	Pupils will **secure their knowledge** of how plants grow by observing plants grow from a seed. They will use their understanding of this to explain how seeds and bulbs grow into mature plants, **considering how plants grow and reproduce in different ways**. Pupils will deepen their understanding of the different parts of a plant, focusing on the roles of the roots, stem, leaves and petals. They will then **name and identify** some common plants such as daisies, roses, daffodils and sunflowers. Pupils will learn about the differences between deciduous and evergreen trees and begin to identify examples of these.

				recycled. Pupils will further develop understanding of the properties of everyday materials, such as being **transparent, rigid, flexible and opaque** and will begin to compare materials based on these. Pupils will explore how some materials can change their shape by being squashed, bent, twisted or stretched.		

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 3	**Topic:** Animals including Humans	**Topic:** Electricity	**Topic:** Plants		**Topic:** Sound	**Topic:** Animals including Humans
	Book: George's Marvelous Medicine	**Book:** Operation Gadgetman	**Book:** Homework on Pluto	**Book:** The Chocolate Tree	**Book:** The Edible Pyramid	**Book:** The Explorer
	Pupils will identify differences, similarities or changes related to simple scientific ideas and processes around the fact that living things need food to grow and be strong and healthy. They will learn about the human body and the importance of each part. Pupils will learn about the roles of the skeleton, muscles, tendons and joints and how they support, protect and allow the body to move. Pupils will learn about the differences between vertebrates and invertebrates and the different characteristics of both. Pupils will set up simple, practical enquiries, comparative and fair tests to investigate that nutrients are substances that living things need to stay alive and healthy, as well as, how energy is needed to be able to move and grow. Pupils will record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. Following this, they will use these results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.	Pupils will learn that electricity is the flow of an electric current through a material. They will gain the knowledge that electricity can be naturally occurring or they can be man-made. Pupils will apply their knowledge and further understand that electricity can be generated sustainably through different means, such as solar power and wind. Following on from this, pupils will ask relevant questions about how everyday appliances rely on electricity to work, and use different types of scientific enquiries to answer them, such as creating and testing different circuits. Pupils will observe findings to these investigations and then record these findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. Pupils will report on their results from enquiries, including oral and written explanations, displays or presentations of results and conclusions.	Pupils will firstly learn that a plant needs water, light, food and nutrients from the soil, and gases from the air and space on the ground, to grow and survive. They will investigate that different plants require a varying amount of these factors. Pupils will identify the parts of a flowering plant including: the flower, stem, leaves and roots. They will gain an understanding of nutrients being substances that are needed by living things to grow and survive and where plants get these nutrients from. Pupils will explore the roles of each part by asking relevant questions and using different types of scientific enquiries to answer them. These enquiries will be simple practical experiments, comparative and fair tests whereby pupils make systematic and careful observations and, where appropriate, take accurate measurements using standard units and a range of equipment, including thermometers and data loggers. Pupils will gather, record, classify and present data in a variety of ways to help in answering questions. From this, pupils will report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. Pupils will explore how plants reproduce through the processes of pollination, fertilisation and germination. They will identify the parts of the plant required for these processes.		Pupils will explore how sound is created and how the human body is designed to hear different sounds. Pupils will learn what sound is and how we can measure sound such as volume, pitch and amplitude. They will learn that sound comes from vibrations, and that different vibrations create different sounds. Pupils will explore, collaboratively, to find patterns in the sounds that are made by different objects. They will investigate how sound travels and how it changes through different materials. Pupils will then draw conclusions from their findings. Pupils will explore how sound travels to the ear. They will identify the parts of the ear and how each part contributes to how the human brain understands these sounds.	Pupils will learn about the functions of the digestive system and will be able to identify the basic parts. Pupils will investigate what digestion is and how the process works. Pupils will identify that teeth are the beginning of the digestive system and will go on to learn about the different types of teeth and identify the functions. Drawing upon prior knowledge of a balanced diet, pupils will work collaboratively to identify foods that are good for your dental health and foods that are not. They will use their knowledge of different foods such as those high in sugar and compare them with foods that are high in different nutrients, predicting and exploring the positives and negatives on dental health and tooth decay. Pupils will choose appropriate means of testing for tooth decay including the most appropriate equipment and how to record and present results. Pupils will create and use predictions based on the knowledge they have learnt before completing the experiment.

	Pupils will identify differences, similarities or changes related to simple scientific ideas and processes such as: animals, including humans, need to consume food, water and air to stay alive whereas plants can make their own food. Building on prior knowledge, pupils will learn that to stay healthy humans need to exercise, eat a healthy diet and be hygienic. They will understand that being healthy means being in a good physical and mental condition while maintaining a balanced diet including an intake of balanced macronutrients. Throughout the term, pupils will use straightforward scientific evidence to answer questions or to support their findings.				They will work collaboratively to decide upon an appropriate way to present results. Pupils will ask questions about different teeth in different animals. Using prior knowledge, they will classify different living things to enable them to accurately create food chains. They will learn that a food chain shows the flow of energy. They will move on and identify the differences between carnivores, herbivores and omnivores and then will be able to identify producers, prey and predators while understanding the importance of each in a food chain.

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 4	**Topic:** Animals including Humans	**Topic:** Electricity	**Topic:** Plants		**Topic:** Sound	**Topic:** Animals including Humans
	Book: George's Marvelous Medicine	**Book:** Operation Gadgetman	**Book:** Homework on Pluto	**Book:** The Chocolate Tree	**Book:** The Edible Pyramid	**Book:** The Explorer
	Pupils will identify differences, similarities or changes related to simple scientific ideas and processes around the fact that living things need food to grow and be strong and healthy. They will learn about the human body and the importance of each part. Pupils will learn about the roles of the skeleton, muscles, tendons and joints and how they support, protect and allow the body to move. **Pupils will be able to understand the difference between muscular and skeletal and describe how muscular and skeletal systems work together the create movement.** Pupils will learn about the differences between vertebrates and invertebrates and the different characteristics of both. Pupils will set up simple practical enquiries, comparative and fair tests to investigate that nutrients are substances that living things need to stay alive and healthy, as well as, how energy is needed to be able to move and grow. Pupils will record findings using simple scientific language, drawings, labelled diagrams, keys, bar	Pupils will learn that electricity is the flow of an electric current through a material. They will gain the knowledge that electricity can be naturally occurring or they can be man-made. Pupils will apply their knowledge and further understand that electricity can be generated sustainably through different means, such as solar power and wind. Following on from this, pupils will ask relevant questions about how everyday appliances rely on electricity to work, and use different types of scientific enquiries to answer them, such as creating and testing different circuits. **Pupils will be able to investigate how to make a bulb shine lighter, using their knowledge of circuits. Pupils will be able to identify the difference between conductors and insulators while recognising that not all metals are conductors of electricity.** Pupils will observe findings to these investigations and then record these findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. Finally, pupils will report on their results from enquiries,	Pupils will firstly learn that a plant needs water, light, food and nutrients from the soil; gases from the air and space on the ground; to grow and survive. They will investigate that different plants require a varying amount of these factors. Pupils will explore and classify a range of common plants according to certain criteria such as environment, size and climate. Pupils will identify the parts of a flowering plant including: the flower, stem, leaves and roots. They will gain an understanding of nutrients being substances that are needed by living things to grow and survive and where plants get these nutrients from. Pupils will explore the roles of each part by asking relevant questions and using different types of scientific enquiries to answer them. These enquiries will be simple practical experiments, comparative and fair tests whereby pupils make systematic and careful observations and, where appropriate, take accurate measurements using standard units and a range of equipment, including thermometers and data loggers. Pupils will gather, record, classify and present data in a variety of ways to help in answering questions. From this, pupils will report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. Pupils will evaluate and discuss ways to improve their scientific experiments and use the evaluations to draw further questions. Pupils will explore how plants reproduce through the processes of pollination, fertilisation and germination. They will identify the parts of the plant required for these processes. Pupils will then investigate how plants can be classified and explore the work of some pioneers in classification e.g. Carl Linnaeus.		Pupils will explore how sound is created and how the human body is designed to hear different sounds. Pupils will learn what sound is and how we can measure sound such as volume, pitch and amplitude. They will learn that sound comes from vibrations, and that different vibrations create different sounds. Pupils will explore, collaboratively, to find patterns in the sounds that are made by different objects. They will investigate how sound travels and how it changes through different materials. Pupils will explore which materials give the best insulation for sound. Pupils will then draw conclusions from their findings evaluate and discuss ways to improve their scientific experiments and use the evaluations to draw further questions. Pupils will explore how sound travels to the ear. They will identify the parts of the ear and how each part contributes to how the human brain understands these sounds. Pupils will have the opportunity to explore why sounds get lighter or fainter according to the distance you are from the source of the sound. Following on from this, pupils will work collaboratively to investigate	Pupils will learn about the functions of the digestive system and will be able to identify the basic parts. Pupils will investigate what digestion is and how the process works. Pupils will identify that teeth are the beginning of the digestive system and will go on to learn about the different types of teeth and identify the functions. Drawing upon prior knowledge of a balanced diet, pupils will work collaboratively to identify foods that are good for your dental health and foods that are not. They will use their knowledge of different foods such as those high in sugar and compare them with foods that are high in different nutrients, predicting and exploring the positives and negatives on dental health and tooth decay. Pupils will choose appropriate means of testing for tooth decay including the most appropriate equipment and how to record and present results. Pupils will create and use predictions based on the knowledge they have learnt before completing the experiment.

	charts, and tables. Following this, they will use these results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. **Pupils will evaluate and discuss ways to improve their scientific experiments and use the evaluations to draw further questions. They will have the opportunity to identify patterns in their results and offer reasons for those patterns.** Pupils will identify differences, similarities or changes related to simple scientific ideas and processes such as: animals, including humans, need to consume food, water and air to stay alive whereas plants can make their own food. Building on prior knowledge, pupils will learn that to stay healthy humans need to exercise, eat a healthy diet and be hygienic. They will understand that being healthy means being in a good physical and mental condition while maintaining a balanced diet including an intake of balanced macronutrients. Throughout the term, pupils will use straightforward scientific evidence to answer questions or to support their findings.	including oral and written explanations, displays or presentations of results and conclusions. **Pupils will evaluate and discuss ways to improve their scientific experiments and use the evaluations to draw further questions.**		how pitch and volume can change in a variety of ways.	They will work collaboratively to decide upon an appropriate way to present results. **Pupils will evaluate and discuss ways to improve their scientific experiments and use the evaluations to draw further questions.** **Pupils will find patterns and anomalies in their results and will be able to suggests reasons why these patterns exist.** Pupils will ask questions about different teeth in different animals. Using prior knowledge, they will classify different living things to enable them to accurately create food chains. They will learn that a food chain shows the flow of energy. They will move on and identify the differences between carnivores, herbivores and omnivores and then will be able to identify producers, prey and predators while understanding the importance of each in a food chain.

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 5	**Topic:** Earth and space	**Topic:** Light	**Topic:** Living things and their habitats	**Topic:** Animals	**Topic:** Forces	
	Book: Cosmic		**Book:** The Boy at the Back of the Class		**Book:** Cogheart	
	Pupils will discover and engage with scientific theories about the Earth and space within our solar system. They will learn about the shape, movement and composition of astronomical bodies including the sun, planets and moons. They will formulate questions and predictions based on their knowledge of the movements of the stars and planets. Building on their knowledge of forces, pupils will use vocabulary such as gravity, orbit, rotation and axis to describe the movement of the planets. They will understand that the Earth moves around the sun and not the other way around. They will understand and be able to explain how planetary rotation results in day and night.	Pupils will plan and conduct experiments into the way that light travels in straight lines directly from a light source (or reflected surface) into our eyes, except when moving from one medium to another, which can cause light waves to refract or bend. Pupils will use labelled diagrams to illustrate their investigative work. They will consider how to ensure a fair test by introducing controls and evaluate their investigations, reflecting on how to improve their future scientific practice. Pupils have learned previously about light as an energy source, both in terms of supporting life on planet earth and as a product of electrical energy. In this unit they will build on this knowledge by developing an understanding of how light is produced and how it travels. They will study the phenomenon of shadows and how they are caused by objects that block the direct path of light. Pupils will use scientific vocabulary (transparent, translucent, opaque) to describe how much light is able to pass through an object.	Pupils will build on prior knowledge of the life-cycles of a variety of animals and humans. They will recognise key stages in development and learn to compare these across animal species and groups. Pupils will formulate questions about how and why different species develop in different ways, using their knowledge of the evolution and consequent classification of species to support their understanding. Pupils will compare and contrast reproduction in mammals and plants. They will use scientific vocabulary regarding the sex cells of both groups (pollen, ovule, sperm, egg) to explain the key stages of reproduction.	Pupils will further develop learning in the previous unit and prior knowledge of the stages of human development by taking an in-depth look at the human life-cycle. They will research and explain the multitude of incremental stages that human beings go through from the moment of fertlisation of the egg, development in the womb, through to birth, childhood development, puberty, and ongoing development through adulthood into old age. Pupils will also engage with and reflect upon knowledge of their own ongoing and upcoming developmental stages – particularly puberty. They will identify differences in the adolescent stage of males and females and learn to explain the changes that transform a child boy or girl into an adult man or woman capable of reproducing.	Pupils will conduct experiments into the impact of forces including gravity, friction, water resistance and air resistance. They will take measurements and collect data which they will display using tables or graphs. They will be able to explain the importance of working with accuracy and precision to ensure that the results of a test are meaningful. They will use evidence gathered to address their hypotheses and use this to explain the effect of forces upon objects in a range of real-world scenarios. Pupils will make comparisons between different forces, for example, distinguishing between the fact that although all forces are pushes or pulls, each may have a range of effects including making an object stop, move, change direction or change speed. They will recognise friction, water resistance and air resistance as stopping forces, compared with gravity, which they should already identify as a pull exerted by the Earth or any object with mass. Pupils will explain how certain mechanisms, such as levers, pulleys and gears, allow a smaller force to have a greater affect.	

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 6	**Topic:** Earth and space	**Topic:** Light	**Topic:** Living things and their habitats	**Topic:** Animals	**Topic:** Forces	
	Book: Cosmic		**Book:** The Boy at the Back of the Class		**Book:** Cogheart	
	Pupils will engage with **and question** scientific theories about the Earth and space within our solar system. They will **research and be able to explain** the shape, movement and composition of astronomical bodies including the sun, planets and moons. They will formulate questions and predictions based on their own observations of movements of the stars and planets. Building on their knowledge of forces, pupils will use vocabulary such as gravity, orbit, rotation and axis to describe **and justify** the movement of the planets. **They will rigorously defend the notion that the Earth moves around the sun, despite the common misconception that the sun looks like it is moving across the sky.** They will understand and be able to explain how planetary rotation results in day and night.	Pupils will **design**, plan and conduct their own experiments into the way that light travels in straight lines directly from a light source (or reflected surface) into our eyes, except when moving from one medium to another, which can cause light waves to refract or bend. Pupils will illustrate their investigative work using **detailed, annotated diagrams**. They will consider how to ensure a fair test **by introducing controls** and evaluate investigations, developing their ideas about how to fine-tune scientific methods in future work. Pupils have learned previously about light as an energy source, both in terms of supporting life on planet earth and as a product of electrical energy. In this unit they will build on this knowledge by developing an understanding of how light is produced and how it travels. They will **research** the phenomenon of shadows, **observing for themselves how these are caused** by objects that block the direct path of light. Pupils will use scientific vocabulary (transparent,	Pupils will build on prior knowledge of the life-cycles of a variety of animals and humans. They will **use evidence to compare and contrast** these across animal species and groups. **Reflecting on their research, pupils will formulate questions of their own** about how and why species develop in different ways, using their knowledge of the evolution and consequent classification of species **to further develop and justify their ideas**. Pupils will **analyse and explain** the reproductive differences in mammals and plants. They will use scientific vocabulary regarding the sex cells of both groups (pollen, ovule, sperm, egg) to **evidence their understanding** of the key stages of reproduction.	Pupils will further develop learning in the previous unit and prior knowledge of the stages of human development by taking an in-depth look at the human life-cycle. **Engaging with current scientific research,** they will uncover the multitude of incremental stages that human beings go through from the moment of fertlisation of the egg **and prenatal development in the womb,** through to birth, childhood development, puberty, and ongoing development through adulthood into old age. Pupils will also engage with and reflect upon knowledge of their own ongoing and upcoming developmental stages – particularly puberty. They will **compare and contrast** adolescence in males and females and **explain** the changes that transform a child boy or girl into an adult man or woman capable of reproducing themselves.	Pupils will **design their own experiments** to investigate the impact of forces including gravity, friction, water resistance and air resistance. They will take measurements and collect data **which they will display in a manner of their choosing, selecting from tables, bar charts, scatter diagrams or line graphs. They will be able to explain the benefits of taking multiple readings** and the importance of working with accuracy and precision to ensure that the results of a test are scientifically viable. They will use evidence gathered to address their hypotheses and use this to explain the effect of forces upon objects in a range of real-world scenarios. Pupils will **investigate** and make comparisons between different forces, for example, distinguishing between the fact that although all forces are pushes or pulls, each may have a range of effects including making an object stop, move, change direction or change speed. They will recognise friction, water resistance and air resistance as stopping forces, compared with gravity, which they should already identify as a pull exerted by the Earth or any object with mass. Pupils will be able to **draw together their knowledge of forces by explaining** how certain mechanisms, such as levers, pulleys and gears, allow a smaller force to have a greater effect. **They will use scientific vocabulary to explain the impact of these mechanisms in real-world situations involving forces.**	

		translucent, opaque) in **describing their observations** about the quantity of light that is able to pass through an object.			