Progression of Milestones in Science

	Plants	Living Things and Their habitats	Animals including Humans	Energy	Materials & Changes	Environment	Earth and Space
Rec	**Autumn 1** I know how to plant seeds and look after them. **Autumn 1(CL) Working Scientifically -** I can use and understand 'why' questions. I can start a conversation with an adult or a friend and continue it for many turns. I can use talk to organise myself and play. I can engage in story times. I can learn new vocabulary. I can ask questions to find out more and to check I understand what has been said to me. **Autumn 2** I know how trees change in winter. **Autumn 2 (CL) Working Scientifically** I can talk about stories to build understanding. I can listen to and talk about non-fiction books. I can use new vocabulary. I can say my views. I can connect one idea or action to another using a range of connectives. I can make observations of change. **Spring 2** I know some parts of a plant. **Spring 2(CL) Working Scientifically** I can describe events in some detail. I can use talk to help work out problems and organise thinking and activities. I can use talk to explain how things work and why they might happen. To know and use new vocabulary in discussions and play. I can work in a small group, class and one-to-one discussions, offering my own ideas, using recently introduced vocabulary.	**Autumn 1** I can use my senses to describe what I notice on an autumn walk. **Autumn 1(CL) Working Scientifically** I can use and understand 'why' questions. I can start a conversation with an adult or a friend and continue it for many turns. I can use talk to organise myself and play. I can engage in story times. I can learn new vocabulary. I can ask questions to find out more and to check I understand what has been said to me. **Autumn 2** I know that some animals hibernate in winter. **Autumn 2 (CL) Working Scientifically** I can talk about stories to build understanding. I can listen to and talk about non-fiction books. I can use new vocabulary. I can say my views. I can connect one idea or action to another using a range of connectives. I can make observations of change. **Spring 2** I know some differences between living and non-living things. I know that animals breathe, grow and feed. **Spring 2(CL) Working Scientifically** I can describe events in some detail. I can use talk to help work out problems and organise thinking and activities. I can use talk to explain how things work and why they might happen. To know and use new vocabulary in discussions and play.	**Autumn 1** I know how I have changed since I was a baby. I can order my life on a timeline. **Working Scientifically - Autumn 1(CL)** I can use and understand 'why' questions. I can start a conversation with an adult or a friend and continue it for many turns. I can use talk to organise myself and play. I can engage in story times. I can learn new vocabulary. I can ask questions to find out more and to check I understand what has been said to me. **Spring 1 (PSHE)** I know what makes a healthy lunch. I know how to brush my teeth properly. **Spring 1 (CL) Working Scientifically** I can talk about my ideas and thoughts in well-formed sentences. I can connect one idea or action to another using a range of connectives. I can listen to and talk about non-fiction to develop new knowledge and vocabulary I can learn rhymes, poems and songs. I can describe events in some detail. I can use new vocabulary taught in projects, in discussions and play. **Summer 1** know how to care for caterpillars as they change into butterflies. I know the lifecycle of a butterfly. **Summer 1 (CL) Working Scientifically** I can make observations of seasonal change.		**Autumn 2** I know some materials. I know what happens when chocolate is heated. I know which materials can change shape **Autumn 2 (CL) Working Scientifically** I can talk about stories to build understanding. I can listen to and talk about non-fiction books. I can use new vocabulary. I can say my views. I can connect one idea or action to another using a range of connectives. I can make observations of change.	**Autumn 2** I know what nature is I know the 4 seasons. I know what happens in the 4 seasons. **Autumn 2 (CL) Working Scientifically** I can talk about stories to build understanding. I can listen to and talk about non-fiction books. I can use new vocabulary. I can say my views. I can connect one idea or action to another using a range of connectives. I can make observations of change. **Spring 1** I know the order of the 4 seasons. I know how weather changes in each season I can recognise signs of winter I know how rainbows are made. **Spring 1 (CL) Working Scientifically** I can talk about my ideas and thoughts in well-formed sentences. I can connect one idea or action to another using a range of connectives. I can listen to and talk about non-fiction to develop new knowledge and vocabulary To learn rhymes, poems and songs. I can describe events in some detail. I can use new vocabulary taught in projects, in discussions and play. **Spring 2** I know how litter affects our local environment. I know how I can make a difference to litter in our local environment. **Spring 2 (CL) Working Scientifically** I can describe events in some detail.	**Spring 1** I know the planets in the solar system. I know that the sun is a star. I know what astronauts wear, eat and do in space. I know the earth tilts. **Spring 1 (CL) Working Scientifically** I can talk about my ideas and thoughts in well-formed sentences. I can connect one idea or action to another using a range of connectives. I can listen to and talk about non-fiction to develop new knowledge and vocabulary To learn rhymes, poems and songs. I can describe events in some detail. I can use new vocabulary taught in projects, in discussions and play.

	I can engage in fiction and non-fiction books and talk about what they have read and what has been read to them. **Summer 1** I know that plants have roots, stems, and leaves. I know the jobs of some parts of the plant. I know that seeds need air, water and light to grow. I know that food grows from the earth. I know how food is grown on an allotment. I know what fruit grows in our local orchard. **Summer 1 (CL)Working Scientifically** I can make observations of seasonal change. I can describe events in some detail and talk about what I observe in the natural world I can use talk to help work out problems and organise thinking and activities. I can explain how things work and why they might happen regarding the environment. I can make comments about what I have heard and ask questions to clarify their understanding. (ELG) I can have conversations I can participate in small group, class and one-to-one discussions, offering my own ideas, using recently introduced vocabulary.	I can work in a small group, class and one-to-one discussions, offering my own ideas, using recently introduced vocabulary. I can engage in fiction and non-fiction books and talk about what they have read and what has been read to them.	I can describe events in some detail and talk about what I observe in the natural world I can use talk to help work out problems and organise thinking and activities. I can explain how things work and why they might happen regarding the environment. I can make comments about what I have heard and ask questions to clarify their understanding. (ELG) I can have conversations I can participate in small group, class and one-to-one discussions, offering my own ideas, using recently introduced vocabulary.			I can use talk to help work out problems and organise thinking and activities. I can use talk to explain how things work and why they might happen. To know and use new vocabulary taught in project in discussions and play. I can work in a small group, class and one-to-one discussions, offering my own ideas, using recently introduced vocabulary. I can engage in fiction and non-fiction books and talk about what they have read and what has been read to them.	
	Knowledge, skills and understanding are further developed through both inside and outside continuous provision in the indoor and outdoor classrooms. These include: **Indoor:** Construction, Mathematics, Reading, Malleable and Craft, Role Play, Writing **Outdoor:** Mud Kitchen, Bike Track, Construction, Music and Stage, Role Play, Sand, Storytelling, Water						

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Y1	**Summer 1** I know the parts of a plant or tree: root, stem, leaf and flower. I know the name of local trees: alder, oak, sycamore, beech, birch, rowan, holly. I know that some trees are deciduous: alder, oak, sycamore, beech, birch, rowan, and some are evergreen: holly and pine. I know the names of flowering plants: begonia, crocus, forsythia, marigold, snap dragon. I know the names of wildflowers: oxe-eye daisy, corn marigold, cornflower, forget-me-not, knapweed. I know that seeds need moist conditions to help them to germinate. I know that seeds germinate and grow into seedlings and then plants. **Working Scientifically** I can label my drawing and photograph with the plant parts: root, stem, flower, leaf. I can sort leaves into groups: leaves which have lobes and leaves which do not; leaves which are green and leaves which have two colours; leaves which are prickly and leaves that are not prickly. I can draw pictures to explain that a deciduous tree loses its leaves in winter, but an evergreen tree keeps its leaves all year round. I can use a table to record information about wildflowers and flowering plants. I can make a prediction to say what I think will happen to the cress seeds I have planted. I can record how the seedlings have changed in height over the half term.	**Spring 1** I know the names of animals including fish, amphibians, reptiles, birds and mammals. I know animals that are carnivores, herbivores and omnivores. I know the teeth of carnivores, herbivores and omnivores. I know the features of fish, amphibians, reptiles, birds and mammals. I know how animals are different or the same (fish, amphibians, reptiles, birds and mammals, including pets) I know how to classify an animal. **Working Scientifically** I can ask questions about animals. I can use the features of animals to compare. I can record using a labelled drawing or by annotating a photograph.	**Autumn 2** I can name the parts of the human body. I can say which part of the body is associated with each sense. I can explain what the senses do. I can ask questions about the senses. **Working Scientifically** I can record my results in a table. I can explain what I have found out. I can make a simple prediction.		**Autumn 1** I know a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. I know the properties of everyday materials. I can group materials. I know how to test an object for a property. I know how to record an experiment. **Working Scientifically** I can observe features of my local environment. I can record my findings. I can give a reason why. I can carry out a simple test and record a prediction. I know how to measure the temperature. I can explain how the temperature has changed. **Summer 2** I know why different materials have been used to make different objects. I know the difference between humanly constructed and manmade. I know what properties materials have and how they are constructed. I know the meaning of transparent and opaque and know why it is useful that some materials are transparent. I know what elastic is and can explain what happens as elastic is stretched. I know how to describe the season we are currently in and I can say how I know. I know how to explain the change in temperature from last half term until now. I know how to measure the temperature and can explain how it has changed. **Working Scientifically** I make a detailed prediction. I design and conduct a fair experiment. I can observe features of my local environment and name what I have seen. I can record my findings in a table. I can explore the world around me and use everyday experiences to talk about observations and help answer questions. I know how to test an object.	**Spring 2** I know that there is plastic in lots of products that we use every day. I know that plastic bags can be harmful to the environment. I know that discarded plastic can end up in rivers, seas and oceans. I know that plastic can be harmful to marine life. I know that plastic takes hundreds of years to degrade. I know that plastic products can be reused and that this will help the environment. I know that plastic products can be upcycled and that this will help the environment. **Working Scientifically** I can sort my plastic object into those that could be reused and those which could not. I can sort plastic bags into lists of features given to me by my teacher. I can use simple books, pictures, and web pages to find out how plastic can harm marine life. I can record my ideas as a labelled drawing or by annotating a photograph.	

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Y2	**Autumn 1** I can identify different seeds. I know that flowering plants reproduce by making seeds. I know that seeds need water to germinate. I know that plants need water, light, nutrients and air to survive. I know that some flowering plants grow from bulbs. I can describe size, shape, colour and whether a plant looks healthy or not. **Working Scientifically** I can record observations in drawings, photos and tables. I can observe changes over time. I can make simple measurements (length). I can draw a simple graph to show data. I can suggest ideas to investigate a given question. I can summarise results – say what I have found out from my investigation.	**Summer 2** I know that some things are living, some are dead and some things have never been alive. I know that plants can move without something acting pushing against them to make them move. I know animals and plants which the habitats: coast, woodland, desert, ocean, pond. I know that a habitat requires everything that an organism requires to survive. I know how living things are adapted to live in: coast, woodland, desert, ocean, pond. I know which animals are carnivores and which are herbivores and whether they are predator or prey. **Working Scientifically** I can record if something is alive, dead or has never been alive, in a table. I can observe how the position of the plant changes over a period of time. I can sort animals into their correct habitat. I can record my observations and findings as: labelled drawings with annotations, photographs and simple prepared tables. I can classify and group animals to say which are predators and which are prey, which eat plants and which eat meat.	**Spring 1** I know that animals, including humans, have offspring which grow into adults. I know the lifecycle of a chicken. I know the life cycle of a butterfly. I know the lifecycle of a frog. I know that humans develop from babies into adults. **Working Scientifically** I know how to record my observations and findings as photographs; I can sequence and annotate them. I know how to record my observations and findings as tables, block graphs and pictograms. I know how to record in words and pictures what I have found out. **Summer 1** I know that cardiovascular exercise increases my heart rate and my breathing rate. I know that regular exercise can improve my mental health, help me to concentrate and help me sleep. I know that resistance exercise can change the shape of muscles. I know that exercise raises my heart rate which keeps my heart healthy. I know that a balanced diet needs to include the right amounts of protein, carbohydrate, fibre, and fat. I know that germs can be spread by sneezes and what I need to do to prevent this happening. I know describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. **Working Scientifically** I can label a picture of a human body to show the effects of exercise. I can record my results in a table and use the results to make a picture graph I can draw my meal onto an Eatwell plate to show what protein, carbohydrate, fibre and fat was in the meal. I can sort food and drink into groups that are healthy and not healthy. I can measure the distance in cm and m to make sure that my investigation is accurate. I can label a human outline to show that humans require exercise, a balanced diet and good hygiene to maintain health.		**Autumn 2** I can identify everyday materials: wood, metal, plastic, glass, brick, rock, paper, cardboard. I can explain how suitable materials are for particular uses. I can say which materials can change their shape by squashing, bending, twisting and stretching. I know the shapes of solid objects can be changed by squashing, bending, twisting and stretching. **Working Scientifically** I can ask questions. I can talk about ways to find out an answer to a questions. I can say what data I might collect.	**Spring 2** I know that plastics are man made I know that plastics don't degrade I know that plastic harms wildlife I know that using lots of plastic has a negative effect on the planet I know about plastic alternatives I know how I can reduce, reuse and recycle. **Working Scientifically** I can sort and group materials to show which contain plastic and which do not. I can record my iPad research in words and pictures. I can record my findings in a table or graph.	

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Y3	**Autumn 1** I know that roots absorb water and nutrients to feed a plant. I know that leaves control the amount of water in a plant. I know that stems transport water and nutrients in a plant. I know that flowers make seeds once they have been pollinated. I know that plants require nutrients to grow healthily and that these nutrients can be found in soil. I know that plants require water, nutrients, carbon dioxide and sunlight for healthy growth. **Working Scientifically** I can record time and length in an investigation using seconds and mm. I can draw the observations I make of a leaf. I can accurately label a photograph of a leaf. I can write an explanation that describes the function of stems and uses the word because to explain how I know this. I can group seeds to show their dispersal method: wind, animal, water, explosion. I can predict which plant food will produce the best plant growth and explain why I think this. I can explain what I discovered in my investigation and how this informs me about requirements for plant growth.		**Spring 1** I know the names of some bones and can label them on a diagram: skull, ribcage, spine, pelvis, femur, humerus. I know that the role of a skeleton is to protect and allow movement. I know that some animals have no backbone, and these animals are called invertebrates. I know that some animals have a skeleton on the inside (endoskeleton) and some have a skeleton on the outside (exoskeleton) I know that muscles can work in pairs and that when one muscle relaxes the other contracts which results in movement. I know that insects require muscles to help them to jump. I know that I cannot make my own food and that I need to eat a balanced diet to maintain good health. I know that I need vitamins to maintain good health. **Working Scientifically** I can record my observations using simple scientific vocabulary in labelled diagrams. I can use an iPad or secondary source to find the answer to a question. I can group animals into their skeleton type. I can collect data and record it. I can write an explanation using the word because to explain which insect jumped furthest. I can use equipment, make observations and record measurements.	**Autumn 2** I know how things move on different surfaces. I know that some forces need contact between two objects, but magnetic forces can act at a distance. I know how magnets attract or repel each other and attract some materials and not others. I know everyday materials that are attracted to a magnet. I know some magnetic materials. I know that magnets have two poles. I know whether two magnets will attract or repel each other, depending on which poles are facing. **Working Scientifically** I can ask relevant questions and use different types of scientific enquiries to answer them. I can set simple practical enquiries, comparative and fair tests. I can use results to draw simple conclusions, make predictions, suggest improvements and raise further questions. I can record findings using simple scientific language, drawings, labelled diagrams, and tables. **Summer 1** I know that you need to light to be able to see things. I know that darkness is the absence of light. I know that light is reflected from objects and that the light travels to my eyes so that I can see them. I know that light is reflected better from shiny surfaces than dull surfaces. I know that when light is blocked by an object then a shadow is formed.	**Summer 2** I know that rocks are made in different ways and this changes their appearance. I know I know that I can group rocks based on their physical properties. I know that there is a reaction between vinegar and sedimentary. rock. I know that sedimentary rock is porous. I know that metamorphic rock is hard. I know how fossils are formed in sedimentary rock. I know that soils are made from rocks, leaves, fungus, and water. I know that the quantity of organic matter and the type of rocks that soils are made of will affect their drainage. **Working Scientifically** I can sort rocks into groups based on their appearance: shiny, dull, crystals, grainy etc. I can classify, group and sort rocks based on their physical properties. I can conduct a test to explore the characteristics of rocks. I can use websites and text to find out how fossils are formed. I can use websites to discover the importance of Mary Anning. I can measure the time it takes for a given volume of water to drain through different soils, in seconds. I can plan an investigation to find our which sandy soil drains best.	**Spring 2** I know the names of mini beasts that I would expect to find in my local area: woodlouse, stag beetle, common wasp, bumble bee, honeybee, red admiral butterfly I know the names of birds that I would expect to find in my local area: woodpigeon; magpie; black headed gull; blackbird; thrush; jay; sparrow; pied-wagtail. I know the names of mammals that I would expect to find in my local area: hedgehog; grey squirrel; hare; badger; mole. I know that diversity should be encouraged in all environments. I know that if one animal in a food chain becomes extinct then there is a negative effect on the other animals within that food chain. I know that rising sea levels have a negative impact on the planet and will result in land loss and extinction. **Working Scientifically** I can talk about how I have grouped the animals that I found in the local area. I can use a simple key to show if the animals I found travel on air or on land; have 2 legs or 6 legs or live in rocks or on a tree. I can use an iPad or secondary source to find the names of at-risk animals. I can use simple keys to sort animals found in the Serengeti using questions that have a 'yes' or 'no' answer. I can make some accurate whole number measurements using standard measures (mm, cm). I can correctly use the equipment that I have been given to set up a test. I can describe the changes that I see happening in my investigation.	**Summer 1** I know that you need to light to be able to see things. I know that darkness is the absence of light. I know that light is reflected from objects and that the light travels to my eyes so that I can see them. I know that light is reflected better from shiny surfaces than dull surfaces. I know that when light is blocked by an object then a shadow is formed. I know that the size of shadows made by the sun change as the position of the sun changes. **Working Scientifically** I can record my observations using simple scientific vocabulary in labelled drawings. I can write an explanation to show what I have found out from examining my test results. I can show how light travels by drawing a diagram and annotating the direction which light travels; where it travels from and where it travels to. I can think of different ideas and suggest ideas about how to investigate which materials block most light. I can make a prediction about which objects I think will cast a shadow. I can use simple scientific words and language to describe and compare how shadows change as the position of the light source changes.

				I know that the size of shadows made by the sun change as the position of the sun changes. **Working Scientifically** I can record my observations using simple scientific vocabulary in labelled drawings. I can write an explanation to show what I have found out from examining my test results. I can show how light travels by drawing a diagram and annotating the direction which light travels; where it travels from and where it travels to. I can think of different ideas and suggest ideas about how to investigate which materials block most light. I can make a prediction about which objects I think will cast a shadow. I can use simple scientific words and language to describe and compare how shadows change as the position of the light source changes.			

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Y4		**Summer 2** I can group living things in a variety of ways and I know the different classifications of animals: vertebrates, invertebrates, reptile, fish, amphibian, bird and mammal I know living things found in the local environment and create a classification key to name leaves and trees. I know the factors that impact on local environments and suggest protective measures. I know the benefits of wildlife reserves and parks and explain why areas like this are needed. I know changes that happen to the environment and on earth and the impact these have on living things. I know what is meant by extinction and I know animals that are extinct or endangered; I know factors that can cause extinction. I know what is meant by 'survival of the fittest'. **Working Scientifically** I can use Venn diagrams and Carroll diagrams to group animals. I can identify similarities and differences. I can collect and record a range of living things from the local Environment. I can group, sort and classify living things. I can use my scientific understanding to describe problems with local environments and habitats	**Summer 1** I know I know the main parts of the human digestive system: mouth, oesophagus, stomach, small intestine, large intestine, rectum, anus. I know what happens at each of the main parts of the human. digestive system and how this helps to digest food: mouth, oesophagus, stomach, intestine, rectum, anus. I know the four different types of teeth found in humans: pre-molar, molar, canine, incisor. I know that it is important to care for teeth by brushing them with toothpaste. I know what could happen to teeth if they are not cleaned carefully. I know which organisms are producers, predators or prey. I know which organisms are producers, which are predators and which are prey on a food chain. **Working Scientifically** I can record the main parts of the human digestive system using clear scientific vocabulary in scientific diagrams with labels. I can explain what happens to food from the moment it is put into the mouth until it is removed from the body as waste. I can research tooth types using a text or and iPad. I can explain my results using scientific vocabulary. I can group a selection of organisms to show which	**Spring 1** I know that sounds are made when materials vibrate. I know that the length of time a material vibrates for depends on that material's physical properties. I know that sound travels by vibrations being passed on from particle to particle. I know why solids are better at passing these vibrations from particle to particle. I know that pitch is the 'squeakiness' of a sound. I know that loudness and pitch are not the same thing. I know that volume describes the loudness of a sound. I know that louder sounds will travel further than quieter sounds. I know why sounds get fainter with distance. **Working Scientifically** I can record data relating to sound in a table. I can describe the patterns between the length of a material and the sound it makes when it vibrates. I can collect and record data relating to how sound travels through solids, liquids and gases using tables, diagram and annotations. I can compare how sound travels through different media and explain why there are differences. I can make observations and collect data related to pitch. I can explain the relationship between pitch and frequency.	**Autumn 1** I know how to group materials together, according to whether they are solids, liquids or gases. I know about changes in state, e.g., solid to liquid or liquid to gas. I know that some materials change state when they are heated or cooled. I know the temperature at which changes of state happen in degrees Celsius (°C). I know about evaporation in the water cycle. I know about condensation in the water cycle. I know the link between the rate of evaporation and temperature. **Working Scientifically** I can make a prediction and give a reason for this, making links to what I already know. I can decide which observations to make. I can record my observations, data and results using scientific vocabulary and symbols - in tables and labelled diagrams. I can explain why something has happened using the correct scientific vocabulary. I can compare my results with others and suggest reasons why they might be different.	**Spring 2** I know that exhaust fumes can damage health. I know that cars can cause damage to air quality. I know that reducing the use of fossil fuels, will reduce exhaust emissions and improve air quality. I know that carbon dioxide, humidity, dust and dirt can reduce the quality of air in the classroom. I know that to improve air quality in the classroom I can: improve ventilation, reduce humidity, and reduce pollution from carbon dioxide, dust and dirt. **Working Scientifically** I can record my observations in bar graphs. I can record my ideas using clear scientific vocabulary and symbols in scientific diagrams. I can explain why air quality is poor in particular situations using the correct scientific vocabulary. I can use an iPad to find ways to improve air quality in school. I can write what I have found out in my own words.	

		and make suggestions for how to overcome them. I can explore the local environment and identify ways in which humans are having a positive impact. I can set up a fair test and explain why it is fair and collect data from an investigation. I can use books and the internet to answer questions about the environment and adaptation. I can record what I have learned about environmental changes and living things.	are producers, which are predator and which are prey and I can explain why I have made each selection. I can record what I have learnt in a clear key using scientific vocabulary.	I can use the internet to find out about the loudness of different sounds. I can record my findings in a way that I choose and set up a fair test to measure distance and sound. **<u>Autumn 2</u>** I can name common appliances that run on electricity. I know whether or not a lamp will light in a simple series circuit. I know how to construct a simple series electrical circuit, identifying and naming its basic parts: cells, wires, bulbs, switches and buzzers. I know that a switch opens and closes a circuit. I know some common conductors and insulators. I know that metals are good conductors. **Working Scientifically** I can work with a group to suggest questions that can be investigated further. I am learning to use of a range of criteria for grouping, sorting and classifying and can explain how my ideas link scientifically.			

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Y5		**Summer 2** I know that animals can only produce offspring via sexual reproduction. I know the life cycle of an insect. I know the life cycle of a mammal. I know the life cycle of a bird. I know the life cycle of an amphibian. I know the differences in the life cycles of a mammal, an amphibian, an insect and a bird. I know the male and female parts of a flower. I know how plants reproduce sexually. I know the difference between sexual and asexual reproduction in plants. I know the role that pollination plays in sexual reproduction in plants. **Working Scientifically** I can research to answer the question 'What is the lifecycle of an insect/' and present my findings. I can research to answer the question 'How do mammals develop as they get older?' and present my findings. I can research to answer the question 'How do bird eggs change over time?' and present my findings. I can research to answer the question 'How do smooth newts and frogs develop over time?' and present my findings. I can observe the parts of a flower and record using a labelled diagram. I can explain how plants can reproduce without pollination occurring. Using scientific knowledge and understanding.	**Summer 1** I know the different stages of the human life cycle: baby, toddler, child, teen, adult, geriatric. I know what gestation is and that it differs depending on the species. I know that a foetus grows and changes as it develops. I know that there a features of childhood that are the same for all children, but that there are also differences. For example: All children do not have the same size feet. I know that eyesight and muscle strength diminish as humans become old. I know the phases of human development and can describe the changes that occur. **Working Scientifically** I can decide whether questions can be answered by testing or by research. I can record gestation periods clearly using scientific vocabulary and symbols bar charts and line graphs. I can record my data about foetal development using clear scientific vocabulary in a line graph. I can identify patterns in my data and decide how to record it in a chart. I can take accurate measurements using weighing scales and understand why I need to repeat my measurements. I can say whether my research has answered my question.	**Spring 1** I know how gravity makes objects fall towards the Earth. I know the effects of air resistance. I know the effects of water resistance. I know the effect of friction between moving surfaces I know that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect. **Working Scientifically** I know when variables need to be controlled and decide when a comparative or fair test is the best way to answer my question. I know how to write accurate conclusions which match the evidence. I make suggestions of how to record my results. I know how to find relationships in the data that I have collected. I know about cause and effect. I know which secondary sources are most useful to research my ideas. I know if my research has answered my question.	**Autumn 1** I know what reversible and irreversible changes are and give examples of them. I can produce my own hardness scale and link the hardness of materials to their use. I can classify materials as transparent, translucent or opaque. I know the terms conductor and insulator and state which types of material make the best ones. I know materials that will dissolve in liquid to form a solution and know how to recover a substance from a solution. I know some of the signs that tell a chemical reaction has occurred. I can classify substances as acids, alkalis or neutral'. I can use knowledge of solids, liquids, and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. **Working Scientifically** I know how to record data using a table to present my results. I know how to take measurements, using a range of scientific equipment. I know how to begin to plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. I know how to make my own decisions about what equipment is most suitable. I know how to use scientific diagrams and labels to record data and support my conclusion. I know how to carry out a scientific enquiry, make accurate observations and report my findings. I know how to make my own decisions about what observations to make, how long to make them for and what measurements to make. I know how to report conclusions based upon data from investigations.	**Spring 2** I know which living things can be found in my local environment. I know that auroch, lynx, elk, wolf, bison, brown bear were once visible in my local area. I know why auroch, lynx, elk, wolf, bison, brown bear became extinct in my local area. I know what could be done to reintroduce auroch, lynx, elk, wolf, bison, brown bear successfully into my local area. I know that bees are essential pollinators and that they are an essential part of food chains. I know that introducing native species to an area can improve diversity and impact positively on ecosystems. **Working Scientifically** I can use develop a key to identify, classify and describe animals that live in my local environment. I can identify patterns that might be found in my local environment. I can explain which secondary sources are most useful to research why some animals that used to live in my local area are now extinct. I can say whether my research has answered my question to explain why animals are no longer present in my local area. I can independently plan an investigation to see which habitat bees prefer and explain my planning decisions. I can make a prediction and begin to think about what will take place. when I put an intervention in place to improve the outcomes for native species.	**Autumn 2** I know the movement of the Earth, and other planets, relative to the Sun in the solar system. I know the movement of the Moon relative to the Earth. I know the Sun, Earth and Moon have approximately spherical bodies. I can use the idea of the Earth's rotation to explain day and night. I can explain the apparent movement of the sun across the sky. **Working Scientifically** I can raise questions and suggest how to find the answer. I can decide which will support me in my work best. I am beginning to make suggestions about how to record my ideas. I can make my own decisions about what observations to make, how long to make them for and what measurements to make. I can recognise which secondary sources are most useful to research my ideas. I can say whether my research has answered my question.

	Plants	Living Things and Their habitats	Animals including Humans	Energy	Materials & Changes	Environment	Earth and Space
Y6		**Autumn 1** I can classify plants, animals and micro-organisms into broad groups according to observable characteristics. I can give reasons for classifying plants and animals based on observable characteristics. I can identify observable characteristics in living things. I can classify vertebrates and invertebrates into subcategories. **Working Scientifically** I can ask a testable question which includes the change and measure variables. I can describe how the evidence I have collected supports or refutes my idea. I can make a prediction and explain my reasons using scientific knowledge. I can use more than one piece of evidence when forming a conclusion. I can describe how to improve planning to produce better results. I can suggest reasons for anomalies. I can select and plan the most appropriate type of scientific enquiry to use to answer scientific questions.	**Spring 1** I know the main parts of the human circulatory system: heart, ventricle, atrium, artery, vein. I know how the heart functions and can explain how blood moves through the heart. I know the role of the circulatory system: the heart, blood vessels and blood. I know how diet, exercise, drugs, and lifestyle impact on the way the human body functions. I know the ways in which nutrients and water are transported within animals, including humans. **Working Scientifically** I know how to raise a scientific question that can be tested. I know how to decide on the most appropriate format to present my data and my results. I know how to explain how the evidence I have collected supports or refutes my idea. I know how to make a prediction and explain my reasons using scientific knowledge. I know how to use more than one piece of evidence when forming a conclusion. **Summer 2** I know why animals adapt to their environment. I know how polar bears have adapted to suit their environment and apply this knowledge to give further examples of adaptation.	**Autumn 2** I know how changing the voltage of cells in a circuit affects the brightness of a lamp. I know how changing the voltage of cells in a circuit affects the loudness of a buzzer. I know how parts of a circuit function. I can draw a diagram of a circuit and use symbols to represent cells, wires, lamps/bulbs, buzzers, switches and motors. **Working Scientifically** I can ask a testable question which includes the change and measure variables. I can describe how the evidence I have collected supports or refutes my idea. I can make a prediction and explain my reasons using scientific knowledge. I can use more than one piece of evidence when forming a conclusion. I can describe how to improve planning to produce better results. I can suggest reasons for anomalies. I can select and plan the most appropriate type of scientific enquiry to use to answer scientific questions. Summer 1 I know how to classify luminous and non-luminous objects. I know that we see objects because light travels in straight lines from light sources to our eyes or from light sources to objects and then to our eyes.	**Summer 1** I know how to classify luminous and non-luminous objects. I know that we see objects because light travels in straight lines from light sources to our eyes or from light sources to objects and then to our eyes. I know why shadows have the same shape as the objects that cast them. I know that concave lenses diverge the light that hits them and convex converge. **Working Scientifically** I can raise a scientific question that can be tested. I can plan and conduct different types of scientific enquiries to answer questions. I can decide on the most appropriate format to present my data and my results. I can explain how the evidence I have collected supports or refutes my idea. I can make a prediction and explain my reasons using scientific knowledge. I can use more than one piece of evidence when I form a conclusion.	**Spring 2** I know how the volume of rainfall has changed in the Northwest of England since the 1800s. I know how the temperature has changed in the Northwest of England. I know what a fossil fuel is. I know how fossil fuels create greenhouse gases which contribute towards climate change. I know the names of extreme weather: floods, tsunami, hurricane, tornado, tropical cyclone, mudslide. I know where extreme weather occurs. I know the impact that extreme weather can have on human life. I know that a carbon footprint is the term used to describe the amount of energy used. I know the negative impact that high carbon footprints can have on human life and the planet. **Working Scientifically** I can identify the range and intervals that I need to use for a set of measurements. I can use the results from my investigation and the knowledge I have acquired during my research to form a conclusion. I can evaluate my research. I can separate fact from fiction or opinion. I can decide on the best way to present what I have found out.	

			I know how the peppered moth adapted due to pollution during the industrial revolution. I know that characteristics are passed from one generation to the next. I know that species produce offspring that are the same as the parents but are different in some ways. I know that fossils records provide evidence of evolutionary change in humans and can describe some of these changes. I know that Charles Darwin was a pioneer in the discovery of evolution through his work with mockingbirds. **Working Scientifically** I can use scientific words and clear sentences to explain adaptations of animals. I can decide which is the best format to present my results and explain my choices. I can make a prediction to say which characteristics will be passed on to offspring and explain my reasons using scientific knowledge. I can use an iPad for research and evaluate fact from fiction. I can use more than one piece of evidence to write a conclusion and explain what I understand about evolution.	I know why shadows have the same shape as the objects that cast them. I know that concave lenses diverge the light that hits them and convex converge. Working Scientifically I can raise a scientific question that can be tested. I can decide on the most appropriate format to present my data and my results. I can explain how the evidence I have collected supports or refutes my idea. I can make a prediction and explain my reasons using scientific knowledge. I can use more than one piece of evidence when I form a conclusion.			