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EYFS							
Autumn 1	Heavy/Light To explore pouring water through pipes. How can you get the water through? Exceeding: To use different sized scoops to pour water?	To explore pouring sand using different containers e.g. teapots into cups. Exceeding: To look at using wet and dry sand. What happens?	To explore different objects and their textures. What does it feel like? To explore spaghetti and look at the changes in texture as it dries.	To describe autumn finding and children guess what the autumn finding is.	To use autumn feely bag. Can you guess what is inside? How does it feel? Etc.	To describe leaves- colour, texture, shape.	
Autumn 2	Spot- Materials/Mirrors and torches. Discovery Area- Light and Dark exploration. To explore different light sources. Does the light change colour? What lights up?	To have balloons and scoops to explore the changes in material when water is added. Identify light sources in our school / local environment.	What light sources can you name? What are they used for?	Which is the best light source in the dark?	Discovery Area- Light and Dark exploration.	How do the light sources light up?	To continue to explore the different light sources. How do the light sources light up?
Spring 1	To match footprints to dinosaur. Which dinosaur left the footprint? (Footprint investigation)	To listen to and explore different dinosaur roars. To explore Dinosaur swampland with different dinosaurs and use their own ideas fairy liquid, sand, dinosaurs.	To role-play digging for fossils and dinosaur remains. To use macaroni and create their own dinosaur skeletons. Floating and sinking dinosaurs-, which dinosaurs float and sink. What are they made from? Is it always true that the larger objects sink and the smaller objects float?	Dinosaur dig- can you find the dinosaur fossils in the sand? What are the best tools to use? Can you identify the dinosaurs you have found?	ILT- To explode a volcano using bicarbonate of soda and vinegar To roll and mould the playdough to create food for the dinosaurs- what would a dinosaur who is an herbivore eat?	'Magnets'/Mirrors Discovery Area Exploring water in different buckets, jugs etc. Which one hold the most/least? How can you test your ideas?	
Spring 2	To sow their own flower. How do you plant it? What does	To make a paper aeroplane. How far does it go?	Materials- To explore different materials. What do they feel like? What	To go on a Spring Walk- what do we notice.	To explore the outside area and look at natural objects.	To build boats and test if they float. What do you need to change?	

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	it need to grow? (Mother's Day)		are they used for? Are they useful?	To plant seeds and watch them grow. To understand what seeds, need to grow e.g., water and light.	What is the same or different?	To use their senses and explore jelly. How does it feel? What has happened to the jelly? What happens when you mix it?	
Summer 1	To explore outside area using magnify glasses and search for snails. Where will you find snails? What do they like to eat?	Spot- To create and explore Minibeasts habitat in outside area and look at similarities and differences using magnifying glasses Can you explore the frogs in the water? Can you make them float on the lily pads? Do the pebbles sink or float?	To name minibeasts they know. Inside-Bug Garden Outside- Bug Garden To develop language of naming different minibeasts.	Discovery Area- To develop understanding of how to look after plants and how they grow. What do the plants need to grow? To explore tadpoles and the life cycle of a frog.	To explore where worms live in local environment. To charm the worms in the vegetable area. To make a wormery. chn. Observe how worms move in soil. To explore compost bins and see if they count how many worms they find. To investigate stretching the worms. How stretchy is 'superworm'	To understand where different minibeasts live. Do they live underground? In the air?	To look for spiders and understand the best way to trap spiders.
Summer 2	Rock-pool Information. What do you find in a rock pool? Can you find out anything else on what lives in a rock pool? To identify different sea creatures that live in rock pools. To mix water with sand. To question the changes and observe what is happening.	To investigate what objects, float, and sink. What objects float and sink? Why?	Inside Spot- To use their senses and explore e.g., Boats, shells, pebbles, seaweed, cuttle fish.  Outside Spot- To develop understanding of different sea creatures that live in rock pools.	TAPs Assessment To create a boat that will float- what is the best material to make it out of and why?	To explore different sea creatures. What sea creatures can you name? To look at video of different sea creatures. What sea creatures do you think Jonah saw? To then look at habitats of different sea creatures	To sort animals into ones you would find in the sea and ones you would not find in the sea.	To use their senses and explore shells in spot. What do they feel like? To understand that beaches have sand/shingle/ pebbles. What creature has a shell?

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Year 1							
Autumn 1	Discuss, identify, label and record materials. Distinguish between an object and the material from which it is made. To sort objects according to properties.	Discuss the differences between an object and the material from which it is made. To use scientific words to identify the materials: wood, plastic, glass and metal.	To explore the properties of metal objects - why some metals stick to magnets. Explore a variety of different magnets and objects (both magnetic and non-magnetic). Sort objects according to different criteria based on their properties: hard, soft, stretchy, stiff, bendy/floppy	**TAPS Assessment**	To recreate the story of The Three Little Pigs using straw, twigs, bricks and other materials. Predict which material will be the most successful and why. Discuss why some pigs may not choose to use bricks and suggest successful alternatives.	To use materials to recreate the alternative story of the Three Little Pigs. To make a prediction on which material will be the most successful and why.	
Autumn 2	*To consider what they already know about weather and generate questions. *To make observations and respond appropriately. *To look at weather forecasts and the symbols used by forecasters. *To create weather forecasts about the weather at school. (recorded on seesaw) What facts do you know about this weather? What clothes do you need to wear? What experiences have you had of this type of weather?	*To understand how trees change with the seasons. *To observe trees in our current season. What do you notice about trees at different times of year? (Recap deciduous and evergreen). Which fruit trees do you recognise? How do they change throughout the year?	*To understand that different things happen in each of the seasons. *To understand how the weather affects our activities. *To understand how the observed weather is typical of the weather for the season we are in. What activities do we do in the different seasons? Why might we do different activities in different seasons?	*To understand that the day length changes each day and varies from season to season. *To investigate shadows and their shapes. How does daylight change across the seasons? How is the daylight different in summer compared to winter? Does my shadow always look like that? What was it like first thing in the morning? Is it better to play shadow tag at lunchtime or after school? Is it bright when you wake up in winter? summer? How does daylight change throughout the year?	*To consider what effect rain has on us and our daily lives. *To design and make a weather station. *To record the rainfall over a period of time *To make predictions about the results from the rainfall gauges. What clothing would we need to wear if it is raining? In which season do you think there is the most rainfall? How could we record the rainfall? Do you think it will rain this week? How much rainwater do you think we might collect during the week? Can we make a clever estimate?	*To make a wind sock to measure wind direction. *To observe and record wind direction over time and notice patterns between rainfall and wind, and changes in direction. *TAPS Assessment* Which season do you think is the windiest? How could we record how windy it is? How can we tell if the wind is blowing? We can't see the wind so how do we know? When is the wind useful? Why would some people need to know which direction the wind is blowing?	*To consider warm and cold weather and measure temperature. *To understand air temperature changes across the seasons. *To make a thermometer box to use outside to measure temperature. Which season is the warmest? Which season is the coldest? What do we use a thermometer for? In which season would we have snow? What clothing would you wear if it was snowing? Why do you think snow falls when it is cold, in the winter? And not in the summer? Would you rather live in a permanent winter or summer? Or a mixture of both? Why? Why not?

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Spring 1							
Spring 2 Senses	Sight *To understand that our senses tell us about what is around us. *To identify and draw the basic parts of the human body. *To say which part of the body is associated with each sense What parts of your body can you name? What are they for? Can anyone name any of our senses? Would it make a difference if we didn't have one of our senses? How?	Sound *To identify and name sounds around school and compare how loud, quiet sounds are *To group sounds in different ways. How do people communicate? How do animals communicate? Where have you heard this sound before? Is it a low, quiet, loud, sound? Is our hearing important to us?	Touch *To compare, using appropriate words, the textures that I touch. *To identify, name and describe objects and materials that I touch with my feet and hands. *To know that different parts of my body are more sensitive for touching than others. How do we know when we are hurt? What about animals, do they get hurt? What different ways can they get hurt? What does… feel like? Is it soft, rough or smooth? When can our sense of touch help keep us keep safe?	Taste *To describe, compare and group different edible materials by using the sense of taste *To describe and compare different tastes How do we taste an apple? What part of our body do we use? What would happen if we stopped tasting things? Why it is important that our tongues (and the tongues of animals) can recognise horrible tastes?	Smell *To use my sense of smell to help me to decide which smells I like and dislike. *To carry out a simple test and record what I find out. *To identify simple patterns in my results. Have you smelt this before? Do people think the same about smells? What is very important about the use of animals and the sense of smell? Can you name smells you like / don't like? What is your favourite smell? Do your clothes smell? Do your clothes smell differently to your friends? What do you use to smell? Does your body react to smells e.g. your tongue when you smell food?	TAPS Assessment	
Summer 1	LO: To be able to identify, name draw and label the basic parts of the human body. What are human beings? Can you name any of our body parts? Why do our	LO: To be able to identify and name a variety of common animals that are birds, fish, amphibians, reptiles and mammals. LO: To be able to describe and	LO: To be able to identify and name a variety of common animals that are birds, fish, amphibians, reptiles, mammals and invertebrates. LO: To be able to sort and group animals. TAPS Assessment	LO: To be able identify and name a variety of common animals that are carnivores, herbivores and omnivores. LO: To be able to record data in simple ways (Venn diagram).	LO: To be able to describe and compare the structure of a variety of common animals. What is different about these animals? What do they have in		

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	bodies look the way they do? Do all humans have the same bodies? Why is this?	compare a variety of common animals. Do all animals have similar body parts? What is similar? What is different? Can you name an animal that has, e.g. legs? Do they have the same number of legs as humans? Do their legs look the same as human legs? What is similar or different about these animals to humans?		What is a carnivore, herbivore and an omnivore? What are you? Why do you think an X is an X? How could we sort these animals? Is it important to have animals in the world with these different diets? Why?	common? How are they like humans? How are they different?		
Summer 2	**Planting beans** Identify and describe the basic structure of a variety of common flowering plants, including trees. To think about what a plant needs in order to grow. Children to plant a bean and observe closely in following weeks. How do we plant a bean? What do you think plants need to grow?	**Parts of plants** Identify and name a variety of wild plants. To identify and describe the different parts of a flowering plant and trees by making and labelling plant pictures. Which parts of a plant can you identify?	**Wild plants** Identify and name a variety of common wild plants To identify and name a variety of different wild plants by going on a wild plant hunt! Children to think about which wild plant is the most common by gathering and recording their data. Which wild plants can you name and identify? Which wild plant was the most common?	**Garden Plants** Identify and describe the basic structure of a variety of common flowering plants, including trees. To identify a variety of common garden plants. Children to draw their own gardens featuring common garden plants. Which garden plants can you name and identify?	**Trees** Identify and name a variety of deciduous and evergreen trees. To understand the terms deciduous and evergreen. Children to identify and classify leaves as deciduous or evergreen and think about the changes in leaves throughout the year. What is the difference between a deciduous and an evergreen plant? How do evergreen and deciduous trees change throughout the year?	**Plants for food** Identify and describe the basic structure of a variety of common flowering plants, including trees. To understand that plants are grown for food. What plants do we eat? Which parts of a plant do we eat? *TAPS ASSESSMENT*	**How do plants grow** Identify and describe the basic structure of a variety of common flowering plants, including trees To observe closely the growth of our bean plants. Children to talk about how their bean plant has grown. What have we found out that plants need in order to grow? Why did some beans grow better than others?

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Year 2							
Autumn 1	* To be able to distinguish between an object and the material from which it is made. * To be able to identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock. ***If we made everything in the classroom out of plastic would that be a good idea? Why/why not? What do scientists do?***	* To identify and compare the suitability of a variety of everyday materials for particular uses (which is the best material for a sailor's shoes?). * To be able to use their observations and ideas to suggest answers to questions. * To be able to gather and record data to help in answering questions. ***Would paper be a good material for making shoes?***	* To be able to identify and compare the suitability of a variety of everyday materials for particular uses (How flexible are plastics? Bottle squirt test). * To be able to gather and record data to help in answering questions. * To be able to perform simple tests. ***Why are this ketchup bottles made of plastic?***	* To identify and compare the properties of a variety of woods (finding the right wood to build Lord Nelson's ship) * To be able to perform simple tests. * To use their observations and ideas to suggest answers to questions. ***If we built a boat out of jelly, would it be a good idea? Why/why not?***	* To apply knowledge of materials investigated so far to design and build a boat and a mechanism for picking it up (DT link). ***Which material(s) would be the best for building a boat? Why?*** ***What do we know about wood as a material that could make it useful for boat building?***	* To identify and compare a variety of everyday materials to make a product (fixing a hole in a ship's bucket) * To be able to use simple measurements to gather data. ***How might they have fixed the bucket in the past?*** ***What materials would they of used?*** ***Do we still use those materials now? Why? /why not?***	* To be able to find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. ***Why would we a use an object that we could change by bending/squashing?*** ***Can you think of a good use for these type of objects?***
Autumn 2	* To apply knowledge of materials investigated so far to design and build a boat and a mechanism for picking it up (DT link). ***Which material(s) would be the best for building a boat? Why?*** ***What do we know about wood as a material that could make it useful for boat building?***	* To identify and compare a variety of everyday materials to make a product (fixing a hole in a ship's bucket) * To be able to use simple measurements to gather data. ***How might they have fixed the bucket in the past?*** ***What materials would they of used?*** ***Do we still use those materials***	* To be able to find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. ***Why would we a use an object that we could change by bending/squashing?*** ***Can you think of a good use for these type of objects?***	*TAPS assessment*			

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		now? Why? /why not?					
Spring 1 Animals Including Humans	* To be able to find out about and describe the basic needs of animals including humans, for survival. ***What are the basic things we need to grow and survive?*** ***Does everybody have access to these things?*** ***Can you tell the difference between what we need and what we want?***	* To know the importance for humans of eating the right amounts of different types of food. ***What do you think are good foods and bad foods? Why?*** ***Can everyone eat healthily?*** ***What do you think would happen if you only ate one type of food?***	* To know the importance for humans of exercise. ***Why do we do the daily mile?*** ***How does doing the daily mile help us?*** ***What would happen if you didn't do any exercise?***	* To be able to record data in a table. * To be able to perform a simple test. *To use data to suggest answers questions.	* To know the importance to humans of hygiene. * To be able to record data (tally chart). ***Why do you wash your hands after going to the toilet?*** ***How can you tell if you are clean or not?*** ***What would happen if we didn't keep clean?***	* To know that humans have offspring which grow in to adults. ***What are the differences between baby humans, children and adults? What is the same?*** ***What did you need when you were a baby that you don't need now?***	**TAPS assessment** – Self led investigation on the effects of exercise on the body.
Spring 2 Animals Including Humans	*To be able to identify and name a variety of common animals that are birds, fish, amphibians, reptiles and mammals. *To be able to describe and compare a variety of common animals. Do all animals have similar body parts? What is similar? What is different? Can you name an animal that has, e.g. legs? Do they have the same number of legs as humans? Do their legs look the same as human legs? What is similar or	*To be able to describe and compare the structure of a variety of common animals. What is different about these animals? What do they have in common? How are they like humans? How are they different?	*To be able identify and name a variety of common animals that are carnivores, herbivores and omnivores. *To be able to record data in simple ways (Venn diagram). What is a carnivore, herbivore and an omnivore? What are you? Why do you think an X is an X? How could we sort these animals? Is it important to have animals in the world with these different diets? Why?	*To be able to identify and name a variety of common animals that are birds, fish, amphibians, reptiles, mammals and invertebrates. *To be able to sort and group animals. TAPS Assessment	Living eggs arrive this week *To know that animals have offspring that grow into adults. *To be able to use observations to suggest answers to questions. Chicken lifecycle What is a life cycle? Can you describe a life cycle? What animals are part of a life cycle? Which are not? Why? How does the life cycle of a chick start? Do any other animals come from eggs?	*To find out about the basic needs of animals for survival and the ways these are similar or different to humans. *To understand that sleep and rest, as well as food water and air are important to survival. What do we need to survive? What do animals need? Is this the same? Why do you think this is? Do we need to sleep? What would happen to our bodies if we didn't sleep or rest?	

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	different about these animals to humans?						
Summer 1	*To be aware of the different methods by which plants disperse their seeds. What is important about these kernels, seeds, pips which are found inside fruits? What is their job? Can you think of different ways that a plant could get its seeds dispersed? Why is it very important for plants to have seeds that can travel? Why is it better for them to be dispersed than to just drop on the ground in a heap all together?	*To find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. *To observe and describe how seeds and bulbs grow into mature plants. * To discuss hydroponics and the concept of growing bulbs in water. What do plants need to survive? If a plant is alive, does it mean it is healthy? Is it the same or different to the things humans need? Do all plants require the same things?	*To understand what plants need to be healthy. *To know that cress seeds need to germinate and grow. *To make predictions and begin to give reasons for what will happen to the cress. What are the perfect conditions for growing cress? What happens if they cannot have one or more of the things they need?	*To understand that there are differences between the beans grown in different conditions and explain why those differences have occurred. *To begin to talk about the various functions of the parts of the plant and their importance. Can you tell what each of the beans are lacking? Once a bean has been denied one of this these, can they be reintroduced back? Do you know what each part of the plant is called? Do you know what each part does? Are all the parts important? Is there any part of the plant that have no function other than to look nice?	*To examine and discuss the cress, including facts about the plant and differences between results from the two growing locations. *To talk about what the seed has produced and how the cress plant grew. Can you explain the differences between the plants grown in different locations? What has the seed produced, can you explain the change over time?		
Summer 2 Animals and their Habitats	*To be able to explore and compare the differences between things that are living, dead, and things that have never been alive. *To be able to identify and name a variety of plants and animals in their habitats, including micro-habitats. ***What is a habitat? Do you know the habitats of any***	*To be able to identify and name a variety of plants and animals in their habitats, including micro-habitats. ***What sort of animal would live in this habitat? Why do they live there? Would this habitat be good for that animal all year round?***	*To be able 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. *To be able to identify and name a variety of plants and animals in their habitats, including micro-habitats.	To be able 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. * To be able to record data in a tally chart.	*To be able 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. *To be able to identify and name a variety of plants and	TAPS Assessment	*To be able to describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food. ***What are animals eating? Do we need every animal in a food chain? What would happen if there weren't any…? Are we all in a food chain? Where do we come in a food chain?***

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	animals? Is everything alive? How do we know if something is alive? What is the odd one out? Can you explain why it's the odd one out?		***Why would an animal live in that habitat? What enables that animal to survive where they live?***	* To be able to record data in a bar chart.	animals in their habitats, including micro-habitats. ***Which caterpillar will survive? Where did you find them? How could we record this information? Which animals are camouflaged to live in their habitats? How?***		
Year 3							
Autumn 1 Animals Including Humans	To identify that humans and animals get nutrition from what they eat. To record findings using drawings. *What do living things need to survive?* *Is this the same for all living things?* *How do animals and humans get food/ nutrition?* *What could happen over time if we don't eat?* *How can we show what we have found out?*	To recognise that humans need the right types and amount of nutrition. To gather data and record and present findings in a table. *What food group does X fit into?* *Can you have a balanced diet without X?* *Why is X food group important?* *How much X is in X food?* *Does everybody need the same types and amounts of nutrition? Why?*	To compare the diets of humans and different animals. To use secondary sources group and classify data. *How could we sort these animal diets?* *What similarities and differences do you notice between the animal diets?* *What similarities and differences do you notice between X animal diet and a human diet?* *Why do different animals need different foods?*	To understand and explain the functions of a skeleton. To report on findings from enquires. *What would happen if we had no bones?* *What is the function of our skull?* *What is the function of our spine?* *Which bone(s) protects X?* *How can we keep our bones healthy and strong?* *What words could we use to describe our bones?*	To identify bones on a skeleton. *Where is X bone?* *What is the function of X bone?* <u>TAPS ASSESSMENT</u> To ask relevant questions and use scientific enquiries to answer them. *What will you investigate?* *How will you investigate your question?* *Will your investigation help you answer your question or is there a better way?*	To identify and group animals with and without skeletons. To make careful observations to group and classify data. *What do you notice about how X animal moves? What does this tell us about its skeleton (endo/exo)?* *What similarities and differences do you notice between our skeleton and X animal's skeleton?* *How could you sort these animal skeletons?*	To explore how skeletal muscles help humans and animals to move. To set up a simple fair test. *What is the job of our muscles?* *What would happen if we had no muscles?* *Why does X animal have strong X muscles?* *How can we find out who has the quickest reaction times?* *What variables must remain the same each time?*

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Autumn 2 Light	To know that light is needed to see things and that darkness is the absence of light. *Why is light needed?* *How do we know light exists?* *How does light travel?* *Where does light come from?*	To recognise that shadows are formed when the light from a light source is blocked by a solid object. *What do you notice about the shape of shadows?* *Why does your shadow move when you move?*	To identify patterns in the way that the size of shadows changes. *Why is the shadow changing position?* *Why is the shadow changing size?* *How can we use this in an investigation?*	To notice how light is reflected from surfaces. *How does the light reflect from different surfaces?* *Can you control where the light travels? How could this be useful?*	To investigate how light is reflected from different materials. *Which material will be best for a book bag?* *Which material do you think will reflect most light?* *How can we measure this?*	<u>TAPS FOCUSED ASSESSMENT</u> 'Can everything make a shadow?' To gather and record data to help in answering questions. *Which materials block light?* *Which materials let light through?*	To recognise that light from the sun can be dangerous and that there are ways to protect our eyes. *Which materials would be appropriate? Why?* *Which colours would be appropriate?*
Spring 1 Forces - Magnets	To know that a force is a push or a pull. To ask relevant questions and suggest scientific enquiries to answer them. *Can you see any forces in action right now?* *Is X an example of a push or a pull?* *What do you want to find out about forces?* *How could you investigate that question?*	To compare how things move on different surfaces. To set up simple fair tests and take accurate measures. *What do you notice about how X moves on X surface?* *What do you notice about the surfaces that X moves quicker on?* *Why does it move slower on X surface?* *Which surface had the most/least friction? Why do you think this is?*	To observe how magnets attract some materials and not others. To make careful observations and present findings. *Is it alive? How do you know?* *What words can you use to describe it?* *What's the same/different about the slimes?* *What happens when you give the slime X material?*	To compare and group everyday materials on the basis of whether they are magnetic. To make careful observations to group and classify data. *Which materials are magnetic?* *What do you notice about the magnetic materials?* *What do the magnetic materials have in common?* *Do you think X material will be magnetic? Why?*	<u>TAPS Assessment</u> To investigate the strength of different magnets. To set up simple practical enquiries, comparative and fair tests. *How can we find out which magnet is the strongest?* *What will you measure?* *How will you ensure it is a fair test?* *Can you predict the weakest/strongest?* *Do the magnets need to be touching the object/material?*	To notice that some forces need contact between 2 objects, but magnetic forces can act at a distance. To record findings using simple, labelled drawings and scientific language. *What do you notice about how the magnet attracts the paper clip?* *How could we investigate the magnetic field?* *When does the paper clip start moving towards the magnet?*	To observe how magnets attract or repel each other. To predict whether 2 magnets will attract or repel each other, depending on which poles are facing. To use results to draw simple conclusions. *What happens when two magnets are placed close to each other?* *Does this always happen?* *Will X magnets attract or repel? How do you know?*
Spring 2							

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Summer 1 Plants	To identify and describe the different parts of a flowering plant. To make systematic and careful observations. *Can you identify the roots/stem/leaves?* *Do all plants have the same parts?* *What words can you use to describe the roots/stem/leaves?* *Do these words give you clues about what the function of it is?* *Are all stems the same?* *Are all roots the same?*	To explain the functions of the different parts of a flowering plant. To use secondary sources to answer questions. To set up a simple comparative test. *What is the job of the leaves/stem/roots? How could we find out?* *Why do you think there are so many roots?* *What might happen if a plant didn't have X?* *Do the different parts of the plant change over time? How could we find out?*	To investigate how water is transported within plants. To make careful observations and record findings. *How can we prove that roots absorb water and stems transport water?* *Does a plant with more roots absorb more water? How could we find out?* *How does water get from the soil to the leaves?* *What conclusions can we make from our investigation?*	To explore the requirements of plants for life and growth. To report on findings from enquiries and draw conclusions. *What differences can you see between the plants grown with and without X?* *What happens to plants that have no light?* *What happens to plants that have no water?* *What do you notice about the leaves/roots compared to healthy leaves/roots?*	<u>TAPS ASSESSMENT</u> To investigate how the requirements for life and growth vary from plant to plant. To ask relevant questions and suggest ways to answer them. *How much water do plants need?* *How can we measure how much water the plant has been given and used?* *How we will know if the plant is getting the right amount of water?* *Do all plants need the same amount of water?*	To explore the role of flowers in the life cycle of flowering plants. To gather and record data, using evidence to answer questions. *Why do plants flower?* *Do all plants flower?* *What do the different parts of the flower do?* *When do plants usually grow flowers? Why?* *How do flowers change over time?* *Can you explain how a plant is pollinated?*	
Summer 2 *Rocks*	LO- To compare and group together different kinds of rocks on the basis of their appearance. What differences and similarities can you see between the rocks? How could we group the rocks?	LO- To compare and group together different kinds of rocks on the basis of their simple physical properties. Which rock is most permeable? How can we find out?	LO- To describe in simple terms how fossils are formed. What are fossils? What can make a fossil? How do you think fossils are made?	LO – To research the life and work of Mary Anning. Who was Mary Anning? How did she change history and science?	LO- To recognise that soils are made from rocks and organic matter. What words could you use to describe the different soils? What do you think the soil is made of?	<u>TAPS FOCUSED ASSESSMENT</u> 'Which rock will be best for a new playground?' How can we find out which is most durable/strongest? Which is the most and least wearing? How do you know?	

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	Which rock could be the odd one out?	Can you order the rocks from most to least permeable?	Why are fossils useful in helping us to understand the world?		How much water do the different soils absorb? Why do you think this is?	What other properties may we need to consider?	
Year 4							
Autumn 1 Living things and their habitats	To recap what a habitat is and identify animals that live in different habitats. What do animals need to survive? How does a particular habitat provide this for them compared with another one? How is a particular animal/plant suited to where they live?	To understand how changes to an environment affect the things that live there. What problems may there be in a particular habitat? What if a busy new road was built next to a wildlife area? What would the negative impact on the animals and plants living there be? What positive impact might there be? (How could humans help in these situation?)	To recognise that living things can be grouped in a variety of ways. What do all living things have in common? What do they have/do that is different? How could we sort different groups of living things? How do we know that a penguin is an example of bird?	To explore and use classification keys to sort animals and plants. What are the similarities/differences between these types of animals? Why are classification keys useful? What type of questions are used in classification keys? Why do you think this is? How do you think the findings of our bug hunt may be different in 2 months time?	To create classification keys. What would be a good question to ask when creating our own keys? Why would this be a good question? Why do you think scientists find it useful to have such tools when they are dealing with hundreds if not thousands of different animals?	**TAPs Assessment** To identify and classify a variety of different living things, identifying similarities and differences.	
Autumn 2 Electricity	**Hook**- To investigate how to make a torch that will keep them safe from the bad dreams (found in the story *The Lost Happy Endings*) and can be used when reading their books. To identify common appliances that run on electricity and to	To identify the dangers electricity can pose and to understand how to stay safe.	To construct simple series circuits and to name basic parts. To be able to recognise some conductors and insulators. What are the various parts of a circuit called? Is this circuit complete or incomplete? Why?	To recognise the function of a switch and to create a simple switch. What examples can you think that use a buzzer, motor or bulb? Why is it useful to switch an electrical current on and off?	**TAPs Assessment** To recognise common conductors and insulators. Which objects completed the circuit? Why? Which things conducted electricity? What materials were they made from? Which		

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	identify the affect the electricity has on the appliance. What is an appliance? Which appliances use electricity? Is their power mains electricity or battery electricity? What affect does electricity have on this appliance?				did not conduct electricity? What materials were they made from? Can you think of anything else that might/might not conduct electricity? Explain your choices. Extend- How do your findings help explain the safety rules that we need to follow when using electricity?		
Spring 1 Materials		*To compare and group materials together, according to whether they are solids, liquids or gases. *To understand the properties that make a material a solid or a liquid. How could we group materials? What differences can you see between solids, liquids and gasses? How do we know whether this is a solid, liquid or gas? Does how we group them change what we can do with them?	*To be able to compare and group materials together, according to whether they are solids, liquids or gases. *To answer questions about gas using evidence from scientific enquiries. Can you name any gases? What happens to gas when heat is added or taken away? Can gas be made from a solid and a liquid? Do a gas start and finish? How does it travel? Can you catch a gas?	*To understand that materials change state when they are heated or cooled and describe this process using scientific language. *To understand the behaviour of particles in the different states and use a thermometer to observe temperature changes of water. How are ice cubes made? What is happening to the particles as they change state? Can you think of a time when materials are changed because heat is added or taken away? Do all liquids freeze? What do you think will happen and what are your reasons for this? Hamilton	*To a question about evaporation and set up a practical enquiry that will provide the scientific evidence to answer it. *To understand the process or evaporation and condensation. What happens to water when it is heated? Does the location of a puddle affect how well it evaporates? When water evaporate or condensates what is happening to the particles?	*To be able to identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. Why is the water cycle essential to life on earth? What might happen if it did not work correctly or too much water became part of the system? Why is it called a cycle? Do you know any other scientific cycles?	
Spring 2 Sound	*To identify how sounds are made, associating sound with something vibrating.	*To explain that sounds are made when an object vibrates and begin to understand that we hear sounds	*To notice patterns between the pitch and volume of a sound and the features of the object that produced it.	*To find patterns between the pitch of a sound and features of the object that produced it. *To ask relevant questions and use different types of	*To use prior knowledge to ask and answer questions about the hearing of humans and other animals.	*To investigate sound proofing materials by planning and conducting a fair test, considering variables	*To test a prediction about sound proofing materials. *To evaluate their sound proofing choices and consider what improvements could be made.

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	What do you already know about sound? What can you hear? Do you know how that sound is made? How does your instrument make noise? Can you change the sound it makes? How?	when the vibrations travel from a source through a medium to our ears. *To use this knowledge to recognise why sounds get fainter when you are further from the source of the sound. How do you know where the sound is coming from? How do you know? How did the sound travel from the source to our ears? Does the size of the cup or the length of the string change the sound?	*To use understanding of pitch and volume to answer questions about soundwaves. What did you do differently to make a louder noise? What does the word pitch mean? Can you sort the notes played on these instruments by the pitch of the sound they make?	scientific enquiries to answer them. How can we alter the pitch of a sound? What tests can we do to test out our ideas? TAPS Assessment	*To understand that sound travels slower than light. How do we hear sounds? Do you know any animals that have good hearing? Why is it important for many animals to hear sounds clearly and to know where the sound is coming from?	and how to record the results. Why is it sometimes important to prevent sound from travelling? How can we make sure the test will be a fair one? What will you use as a sound source? What do you think will be the best material and why?	
Summer 1							
Summer 2 Animals Including Humans		To name the basic parts of the digestive system and describe their simple functions in humans. What happens to your food once you have chewed it? Can you name any of the body parts that are used to move food through your body? How long does it take for food to travel from your stomach to your small intestine? Does	To identify the different types of teeth in humans and their simple functions. How do we keep our teeth healthy? Why is this important? What would happen if we didn't? What do we need our teeth for? Are they important? Are all the teeth in our mouths the same?	TAPS Assessment *To investigate the effect of plaque acid on teeth. Why is it important to look after your teeth? What can you do to look after them? What do you think will happen? Why? Why have some 'decayed' more than others? What do you think is in the liquid that is making this happen? Were there any surprises? How is this this similar to your teeth? How is this different?	To compare the diets of different animals. To identify the different types of teeth animals have and how this is linked to their diet. Do animals have the same digestive system as humans? Do they have the same diets as us? What affects diet? How can we tell what an animal has eaten? Do animals have the same teeth as humans/each other? What us a carnivore,	To construct and interpret a variety of food chains, identifying producers, predators and prey. To use understanding of producers, predators and prey to answer questions about the impact of changes to a food chain. Can you explain this food chain? Look at this habitat, which animal would there be most of here? With nothing eating the top	

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		this depend on what you eat? What happens if we eat food that is poisonous or has gone bad? What effect does this have on our body? Does all food pass through the body in the same way?			herbivore and an omnivore? What is a predator? What is prey?	predator, what will stop them from taking over? Who is the primary consumer? The secondary consumer? What will happen if one plant or animal in the food chain is removed?	
Year 5							
Autumn 1 **Animals including Humans**	To describe the changes as humans develop to old age What happens at different stages in our lives? What would someone be doing who is (this) old? Does it change? Do you change as you get older, and how?	To understand about foetal development in humans What a gestation period? How long is the average human gestation period? How does a foetus change? Why does it matter if the mother stays healthy and safe?	To recognise and explore key milestones in baby and child development How do scientist know what milestones should be met when? Does everyone meet milestones at the same age? Is this OK? What can we learn about the rate of growth?	To identify physical and mental changes that happen from adulthood to old age. To discuss how elderly people are cared for and how we can support them in the community. When do women stop having children and why is this? How do peoples bodies change as they get older? Why might some older people need extra help or support?		TAPs assessment To identify, order and explain the six key stages in a human life. What happens at each stage in human life? Do we go through them all? Are the different stages that humans go through the same as animals?	
Autumn 2 **Space**	To name and order the planets within our solar system and look at how far away from the sun they are. Can you name the planets? What order do they go in? Can you make any predictions about	To investigate what other planets in our solar system are like. To understand that the planets orbit around the Sun and that the sun is the centre of our solar	To use a variety of evidence sources to prove that the Earth, sun and moon are approximately spherical bodies. What is your evidence that something is a particular shape? How can you prove it? What shape is the Earth? How	To describe the movement of the moon relative to the Earth. What objects orbit the Earth? How does the moon move? Why is the moon only lit from one side? How does the shape of the moon change over time? Why does it appear to do this?	To use the idea of the Earth rotating on its axis to explain day and night. How does the rotation of the Earth cause day and night? What would happen if the Earth were still? What other evidence can	TAPs assessment- To present their findings from this unit in a clear and concise way, using research and models where appropriate.	To research famous scientist who have contributed to our understanding of space. What type of scientific skills will we need to use in order to answer our questions? What do we want to know? How can we find out this information? How can we be sure our information is accurate? Why is it

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	where a planet will go based on its size and what we know about it? How far away is a particular planet from another? Why do you think this is? Can you spot any patterns?	system (heliocentric model) What type of scientific skills will we need to use in order to answer our questions? What do we want to know? How can we find out this information? How can we be sure our information is accurate? How do the planets in the solar system move? How do we know? What is our evidence for this? What is at the centre of the solar system? How do scientific ideas change? Why did it take such a long time to change from a geocentric to a heliocentric model of planetary movement?	do you know? What shape does it look like to you? Which idea has the most support? What do you believe based on the evidence you have looked at? How would you persuade someone who disagreed with you?		we use to explain that it is the Earth that is moving? How can we model this in an effective way? How can we explain our reasoning clearly? Does night and day occur at the same time everywhere on Earth? Why are time zones important?		important that we know about scientists from the past? Who do you believe was the most important scientist that contributed to our understanding of space? Why do you think this? Should the credit for a discovery go to one particular person in the space mission, or the scientists and engineers who developed the mission?
Spring 1 Materials	*To be able to compare and group together everyday materials based on evidence from comparative and fair tests, including their conductivity of electricity. Which materials allow electricity to pass through them? Is all metal a conductor of	*To be able to compare and group together everyday materials based on evidence from comparative and fair tests, including their conductivity of heat. *To be able to report and present findings from enquiries, including	*To compare everyday materials on basis of their thermal conductivity. *To give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials. *To be able to measure accurately using a thermometer.	*To understand that some materials will dissolve in liquid to form a solution. *To describe how to recover a substance from a solution. What affects how well sugar dissolves? What are the best conditions for the sugar to dissolve in the shortest time? Does it make a difference how hot the water is? What about	*To compare and group together everyday materials, based on their properties, including their solubility and response to magnets. *To know that some materials will dissolve in liquid to form a solution, and describe how to		*To compare and group together everyday materials, based on their properties, including their solubility 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 *To use knowledge of solids, liquids and gases to decide how mixtures might be

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	electricity? If so, are some better than others? Why? What situation would we need to stop electricity from flowing through a circuit?	conclusions, causal relationships and explanations. What will happen to the ice if it is covered? Will adding materials to cover the ice, increase or decrease the rate of melting? Does it matter what materials we cover the ice with?	Which material is best at keeping the tea warm? TAPS Assessment	the sugar that is being used? How could we test this?	recover a substance from a solution *To use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. How can we separate mixtures of different solids and liquids? What is the best material for filtering? When would we use these methods? Can everything be separated by filtering, sieving or evaporation?		separated, including through filtering, sieving and evaporating. How can we separate mixtures of different solids and liquids? What is the best material for filtering? When would we use these methods? Can everything be separated by filtering, sieving or evaporation?
Spring 2 Materials		*To compare and group materials together, according to whether they are solids, liquids or gases. *To understand the properties that make a material a solid or a liquid. How could we group materials? What differences can you see between solids, liquids and gasses? How do we know whether this is a solid, liquid or gas? Does how we group them change what we can do with them?	*To be able to compare and group materials together, according to whether they are solids, liquids or gases. *To answer questions about gas using evidence from scientific enquiries. Can you name any gases? What happens to gas when heat is added or taken away? Can gas be made from a solid and a liquid? Do a gas start and finish? How does it travel? Can you catch a gas?	*To understand that materials change state when they are heated or cooled and describe this process using scientific language. *To understand the behaviour of particles in the different states and use a thermometer to observe temperature changes of water. How are ice cubes made? What is happening to the particles as they change state? Can you think of a time when materials are changed because heat is added or taken away? Do all liquids freeze? What do you think will happen and what are your reasons for this?	*To a question about evaporation and set up a practical enquiry that will provide the scientific evidence to answer it. *To understand the process or evaporation and condensation. What happens to water when it is heated? Does the location of a puddle affect how well it evaporates? When water evaporate or condensates what is happening to the particles?	*To be able to identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. Why is the water cycle essential to life on earth? What might happen if it did not work correctly or too much water became part of the system? Why is it called a cycle? Do you know any other scientific cycles?	

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Summer 1 Materials (cont)	To investigate some reversible changes associated with melting and freezing (solidifying) and to make connections with this and their knowledge of the properties of solids and liquids. What do you notice is happening? Why is this happening? How is your product more/less useful than it was before? How could we change this product back to its original state? Will it be exactly the same? Does a reversible change have to create the exact same product when it is reversed?	To investigate how dissolving is an example of a reversible change and how evaporation can be used to assist in bringing the products back to their original states. What is dissolving? What is evaporating? What do you notice is happening? How can this be applied within the real world? What is happening to the particles? Explain how this is an example of a reversible change.	To explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible. Is this change reversible or irreversible? How do you know? What has changed? What has stayed the same? What is the reactant and the product in a particular reaction? What caused the chemical change to take place? What other examples of irreversible changes can you think of?	(TAPs assessment- Linked to DT) To describe how products can be cooked or chilled to change the raw ingredients and how these are often examples of irreversible changes. What has changed? What has stayed the same? What caused the chemical change to take place? What is the reactant and product in a particular reaction? What are the differences between reversible and irreversible changes? Which do you think are most scientifically important and why?			
Summer 2 Animals Including Humans	To dissect and label the parts of a flowering plant, including male and female structures. *Gladiola dissecting To record findings as an annotated botanical illustration of a flowering plant. To research the life cycle and reproduction of a flowering plant.	To learn about processes of natural and artificial asexual reproduction in plants To sketch a detailed & annotated botanical illustration of asexual reproductive processes	To learn about the lifecycle and reproduction of amphibians and insects To sketch a detailed & annotated zoological illustration of the lifecycle and reproduction of an amphibian and insects. Why might it be trickier to make zoological illustrations?	To learn about the lifecycle and reproduction of mammals and birds To sketch a detailed and annotated zoological illustration of the lifecycle and reproduction of a mammal and bird. How do you think scientists have developed their understanding of mammals and birds?	To research the life cycles of a contrasting bird, insect, amphibian and plant To record life cycles in the form of annotated scientific illustrations What information do you need to find out for you illustration? How are you going to create a scientific	To make observations, as a natural scientist would, recording data and reporting findings To learn about some famous naturalists What can you see/hear/smell? Can you name any scientists who are naturalists or animal behaviourists? (Charles Darwin, Chris Packham, David Attenborough)	

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	What is the main difference between the male and female plant? Can you explain the term 'Botanical Illustration?'	To investigate artificial forms of asexual reproduction in plants What do you think the word artificial means in this context? Where do you think a cutting might come from - leaf cuttings or stem cuttings?	Do you think they reproduce sexually or asexually?	Why do you think it is important for scientists to observe in the wild?	illustration for unusual mammals? What sort of sketches do you need to include to show how lifecycles differ?	What patterns in behaviours might they study?	
Year 6							
Autumn 1 **Light**		To recognise that light appears to travel in straight lines. Is it possible for light to travel round a corner?	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 could we prove this idea? Is it possible?	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. What if light disappeared? Could we survive without light? How would we have to adapt to exist without light?	**TAPS Assessment**	To use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. What is the largest shadow we could make? Could you make a large shadow with a small object and a smaller shadow with a large one?	
Autumn 2 Electricity	To be able to use recognised symbols when representing a simple circuit in a diagram. Which symbol would represent X? How can we remember this?	To be able to associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. To recognise and control variables What do you predict will happen	To be able 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. To take measurements, using a range of scientific equipment with increasing accuracy.	*To use test results to make predictions and set up further comparative tests* How have your test results affected your predictions? Have any other factors affected this? How can you ensure you will be setting up a fair, comparative test? What must remain the same? What can change?	*To report and present findings from enquires in oral and written forms (presentation)* What would be the clearest way to present your results?	**TAPS ASSESSMENT** **Light up Christmas decoration &** **Motor powered vehicle (DT)**	

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		if? Based on what you have just discovered, what do you think will happen if? Will adding more motors/buzzers affect the brightness of the bulb? Will adding more bulbs affect the volume of the buzzer?	Why has X affected X? What is most effective in changing the brightness of bulbs/speed of motors/volume of buzzers etc?				
Spring 2 Evolution & Inheritance	To know that features can be inherited. Mr Men *What do we understand by inheritance?* *What things do you think are inherited?* *Can you inherit a sense of humour? Good fashion sense?*	To identify how animals and plants are adapted to suit their environment in different ways in the context of environmental variation. MOTH lesson *Is adaptation necessary?* *Do humans show adaptation?*	Identify how adaptation may lead to evolution by examining the theories of evolution constructed by Darwin and Wallace. Beak lesson *Why is it called a theory?* *Why was his theory so radical when it was first proposed?*	Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago in the context of the evolution of plants and animals. First hand observations *How were fossils formed and why are they so important in the evolution theory?*	Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago in the context of the evolution of human beings. *Diary Entry* *Evaluate the role of Mary Anning in fossil discovery.* *Written outcome.*	**TAPS ASSESSMENT** Identify how adaptation may lead to evolution by examining the advantages and disadvantages of specific adaptations and the role of human intervention in the process of evolution. *Should man have interfered in the development of animals such as selective breeding?*	
Summer 1 Living Things and their Habitats		To sort and group animals based on their features. To give reasons for the way they have classified animals. *Why should we classify animals?* *Apart from the obvious (looks) what other attributes might*	To describe who Carl Linnaeus was. To explain how living things are classified using the Linnaean system. To classify living things using the Linnaean system. *Can you design your own criteria for classification?*	To recognise the key features that identify the different invertebrate groups. *What features make your creature part of this class?* *How do you know it does not belong in another group?*	To identify types of microorganism. To describe helpful and harmful microorganisms. *Do we know everything about micro-organisms now? How do you know?*	TAPS ASSESSEMENT **Working Scientifically Focus:** Record data using classification keys **Conceptual Knowledge Focus:** classify plants and animals based on specific characteristics	To describe and compare the structure of different cells. To describe the characteristics of different microorganisms. *Why is it important that we understand classification of micro-organisms?*

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		scientists use? What do you think is the best way to group animals? Is there a best way?		*How can you prove it belongs/ does not belong?*			
Autumn 1 Animals Including Humans		To explore the question : *If you had to build a human, what would you need for it to work?*	To identify and name the main parts of the human circulatory system, and explain the functions of the heart, blood vessels and blood. *What is the job of the heart? Blood vessels? Blood? Could we survive without one of them? Which is most important? What is blood? What is special about how the heart works?*	To recognise the impact of diet, exercise, drugs and lifestyle on the way the body functions. *Why is it important to lead a healthy lifestyle? What risks are there if we do not? Are all risks as dangerous as one another? What is the biggest risk to our health?*	To describe the ways in which nutrients and water are transported within animals, including humans. (writing opportunity) *Why is water so important to us? Would our bodies work the same is we replaced water with cola? How much water is in our body?*	**TAPS** Assessment Lesson.	To plan a pattern-seeking enquiry. *What do you want to find out? How could you find it out? How else could you find it out? What do you think will happen? What else do you think will happen? How will you record your findings?*