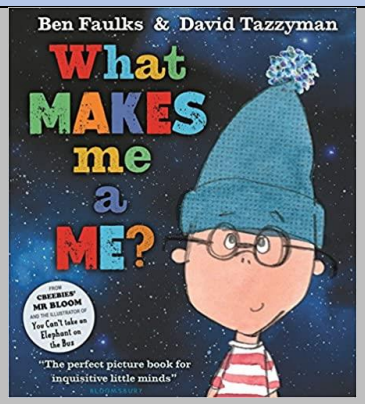
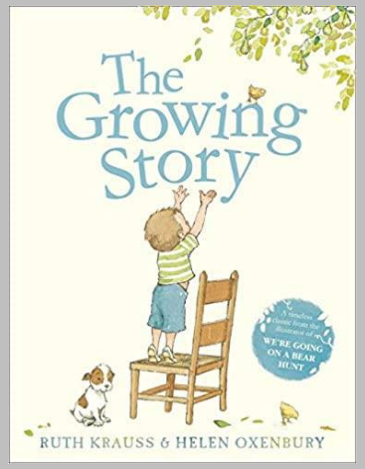
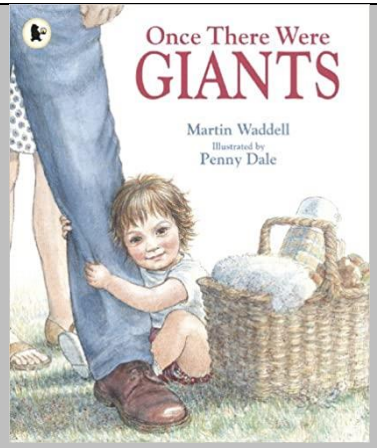
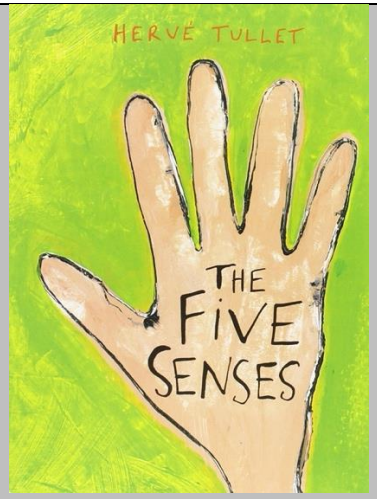
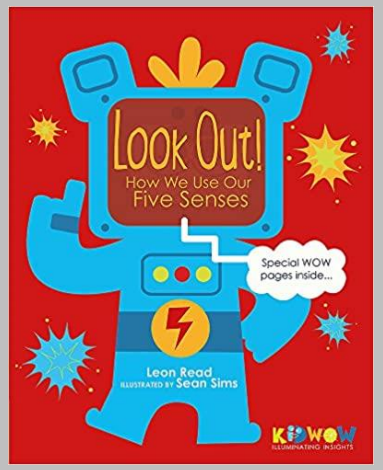
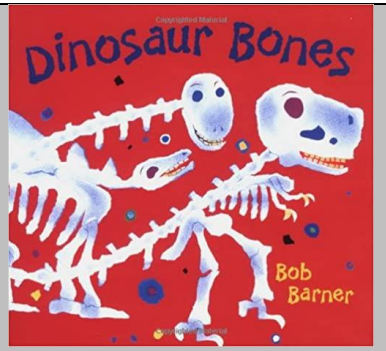
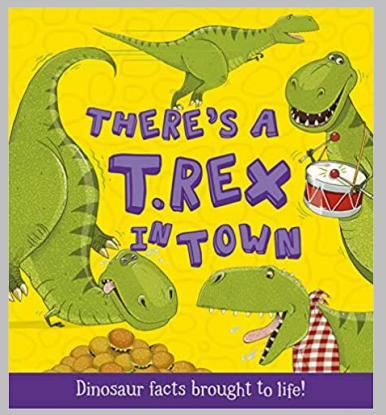
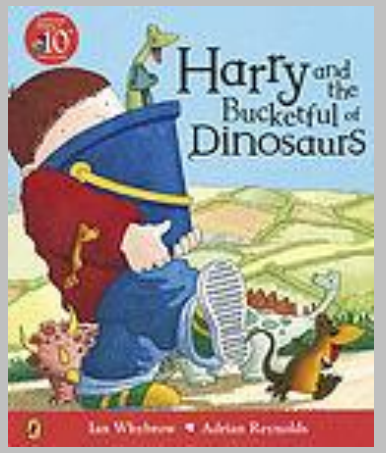
Chapelford Village Primary School
Long Term Subject Progression Overview

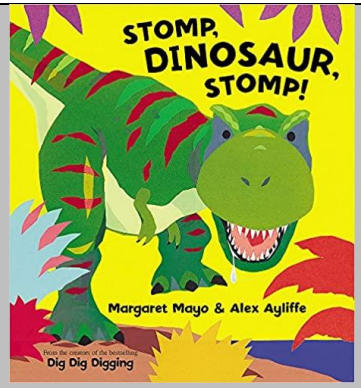
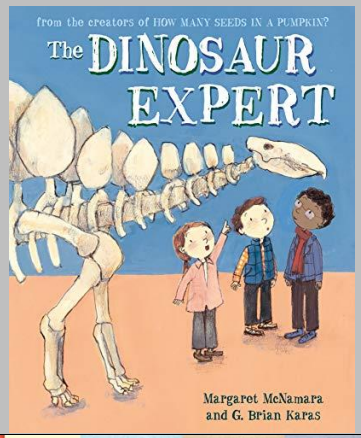
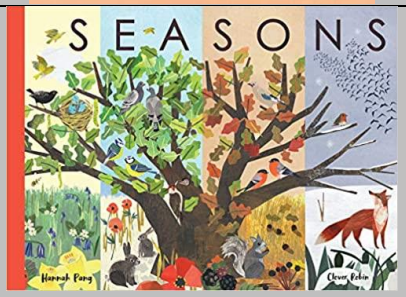
Subject: Science
Subject Lead: Hannah Hackett and Amy Barber

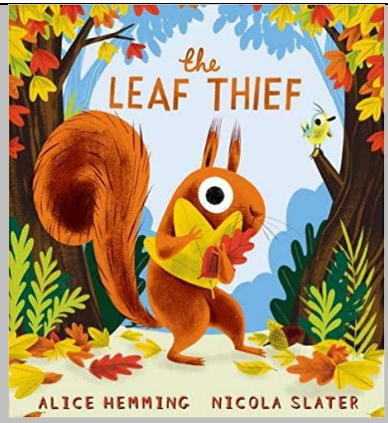
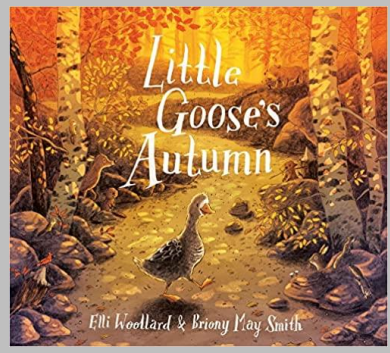
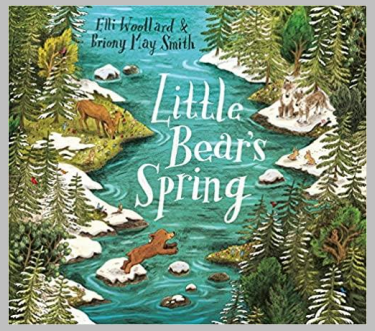
Year Group	Area of Learning	Knowledge	Skills	Vocabulary (Tier 2 and 3)	Suggested Wider Reading Texts:
Early Years	All About Me: Senses, growth and change (humans)	• I know about the life cycle of a human. • I can talk about how I have changed since I was a baby. • I can talk about similarities, differences, pattern and change in relation to people. • I can talk about the 5 senses.	• Encourage interactions with the outdoors to foster curiosity and give children freedom to touch, smell and hear the natural world around them during hands-on experiences.	Science, experiment, investigation, test, why, senses, world, humans, natural, change, grow and environment.	 

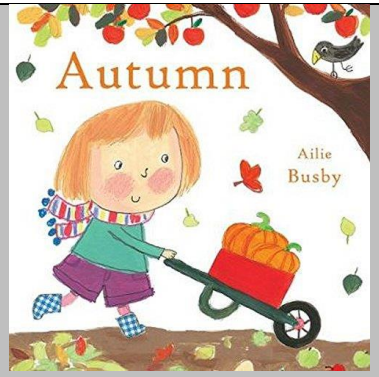
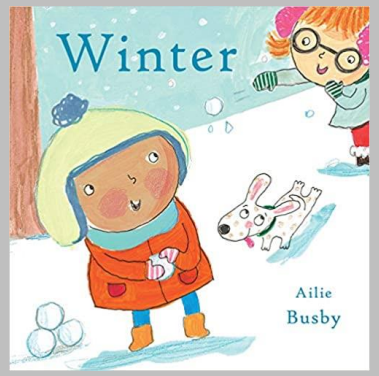
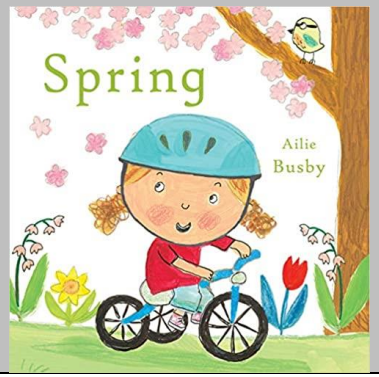
					 Once There Were GIANTS Martin Waddell Illustrated by Penny Dale  SCRATCH SNIFF SEARCH FOLLOW YOUR NOSE EVERYDAY SCENTS AUZOU

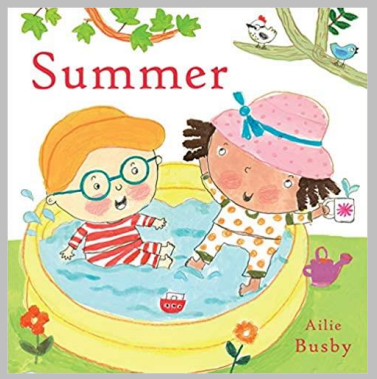
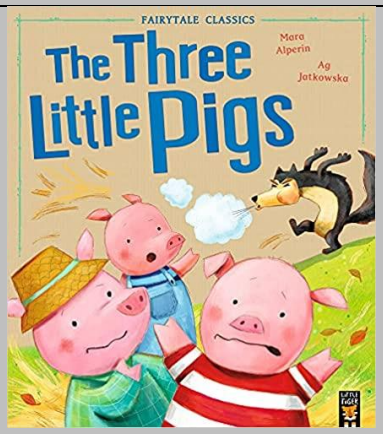
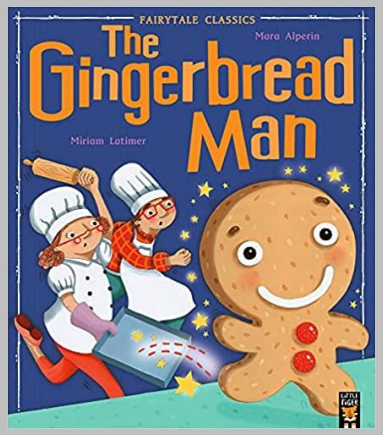
					 HERVÉ TULLET THE FIVE SENSES  Look Out! How We Use Our Five Senses Special WOW pages inside... Leon Read ILLUSTRATED BY Sean Sims KIDWOW ILLUMINATING INSIGHTS

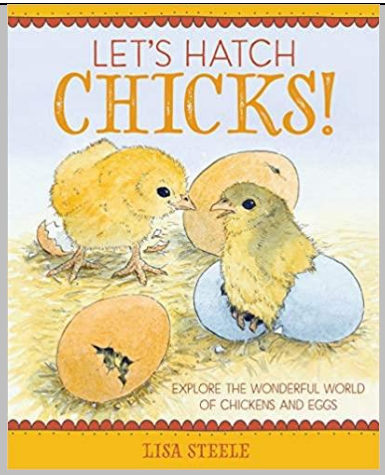
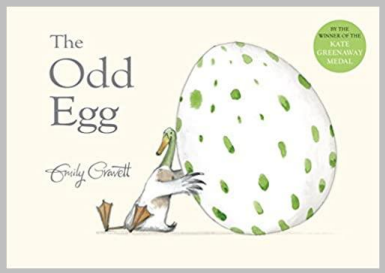
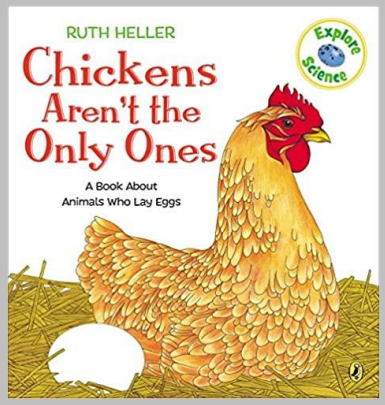
	Dinosaurs: comparing and grouping	• I can identify which dinosaurs are plant or meat eaters. • I can talk about similarities and differences in relation to dinosaurs. • I can name different body parts from dinosaurs.	• Provide children with have frequent opportunities for outdoor play and exploration. • Encourage focused observation of the natural world. • Listen to children describing and commenting on things they have seen whilst outside, including plants and animals.	Science, experiment, investigation, test, why, world, plants, animals, humans, natural, change, grow, decay, rot and environment.	  

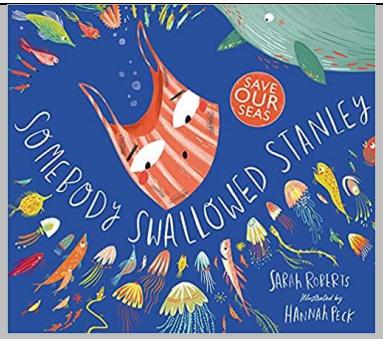
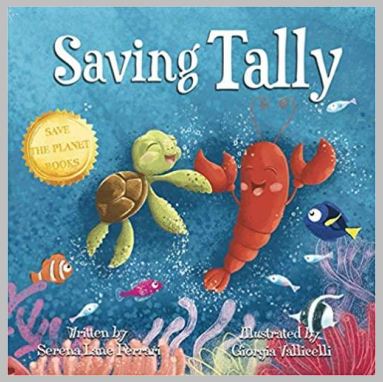
					 
	Seasonal changes	• Investigating the seasons and the changes in the weather. • Why are there so many leaves on the ground? • I can talk about changes I can see in winter.	• Provide children with have frequent opportunities for outdoor play and exploration. • Encourage interactions with the outdoors to foster curiosity and give children freedom to touch, smell and hear the natural world around them during hands-on experiences.	Science, experiment, investigation, test, why, world, plants, animals, natural, change, grow and environment.	

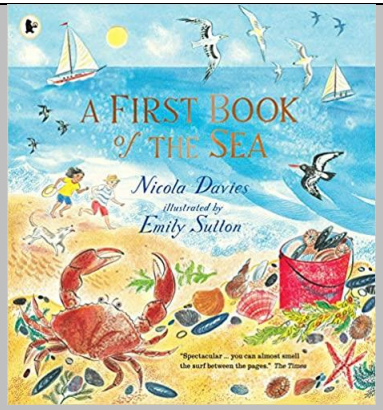
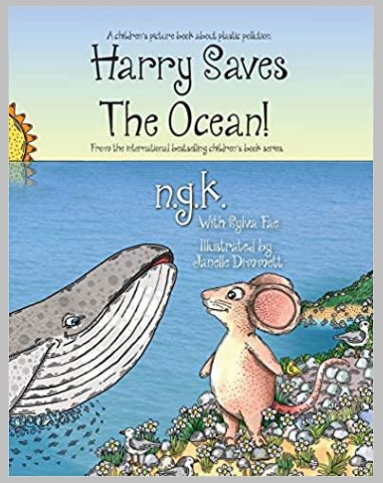
			• Encourage focused observation of the natural world. • Listen to children describing and commenting on things they have seen whilst outside, including plants and animals. • Encourage positive interaction with the outside world, offering children a chance to take supported risks, appropriate to themselves and the environment within which they are in.		  

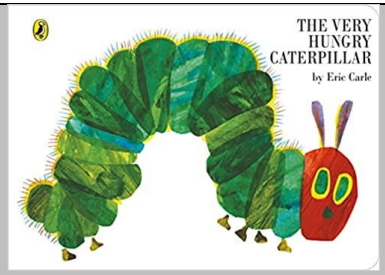
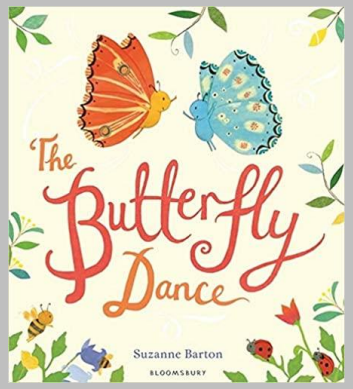
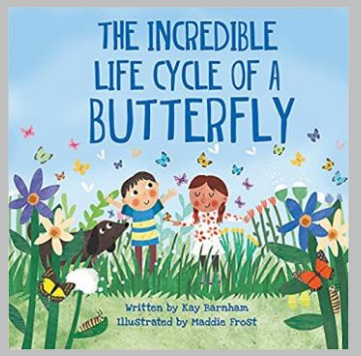
					 Autumn Ailie Busby  Winter Ailie Busby  Spring Ailie Busby

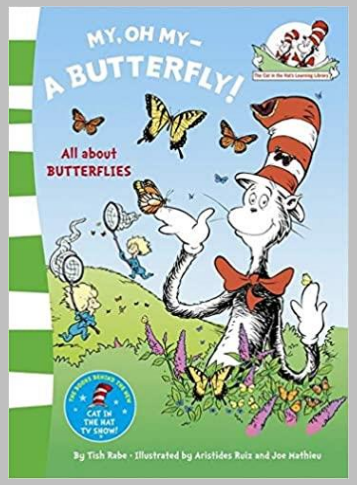
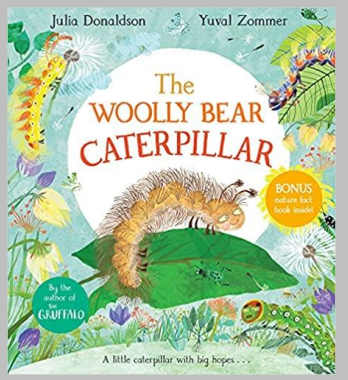
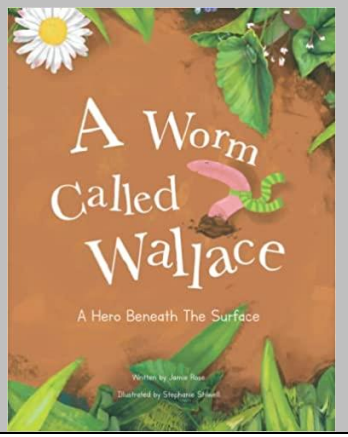
					
	Everyday materials	• Naming and sorting everyday materials. • Discuss how the materials feel • Begin to understand and explain the uses of some materials • Why didn't the brick house blow down in the Three Little Pigs? • Why couldn't the gingerbread man swim?	• Provide children with have frequent opportunities for outdoor play and exploration. • Encourage interactions with the outdoors to foster curiosity and give children freedom to touch, smell and hear the natural world around them during hands-on experiences. • Encourage focused observation of the natural world. • Listen to children describing and commenting on things they have seen whilst outside, including plants and animals.	Science, experiment, investigation, test, why, materials, see through and push/pull (linked to magnets).	 

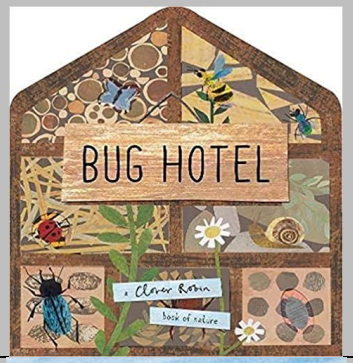
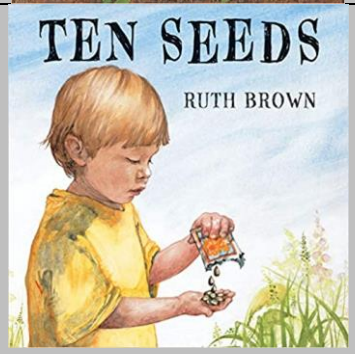
	Life cycles	• Life cycle of a hen/duck • Observing the eggs and stages of growth • Understand how to care and provide for the eggs/animals • Similarities and differences of living things	• Encourage focused observation of the natural world. • Listen to children describing and commenting on things they have seen whilst outside, including plants and animals. • Encourage positive interaction with the outside world, offering children a chance to take supported risks, appropriate to themselves and the environment within which they are in.	Science, experiment, investigation, test, why, animals, natural, change, grow and environment.	  

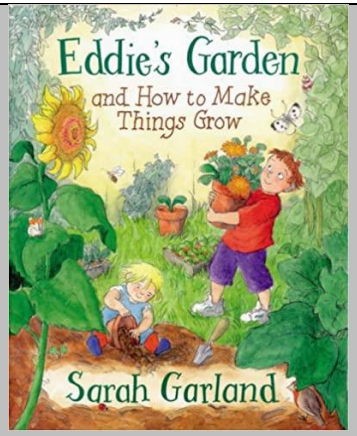
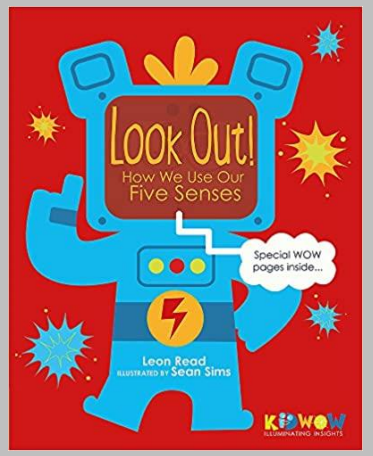
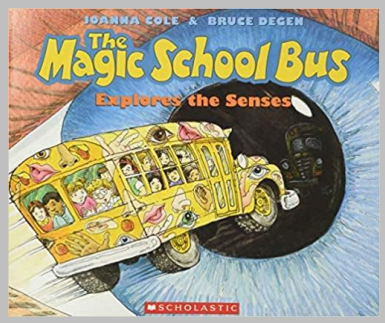
	The ocean	• The impact of plastic in our oceans • How we can support and make an impact on the amount of plastic that ends up in the ocean. • Floating and sinking-linking to materials (Spring 1)	• Provide children with have frequent opportunities for outdoor play and exploration. • Encourage interactions with the outdoors to foster curiosity and give children freedom to touch, smell and hear the natural world around them during hands-on experiences. • Encourage focused observation of the natural world. • Listen to children describing and commenting on things they have seen whilst outside, including plants and animals. • Encourage positive interaction with the outside world, offering children a chance to take supported risks, appropriate to themselves and the environment within which they are in.	Science, experiment, investigation, test, why, world, plants, animals, humans, materials, see through, natural, change, and environment.	  

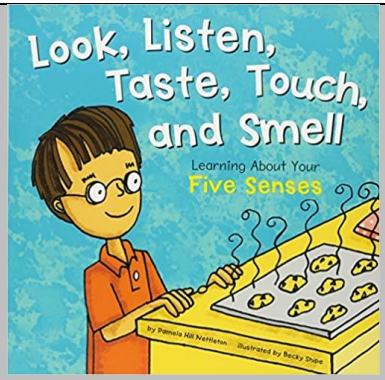
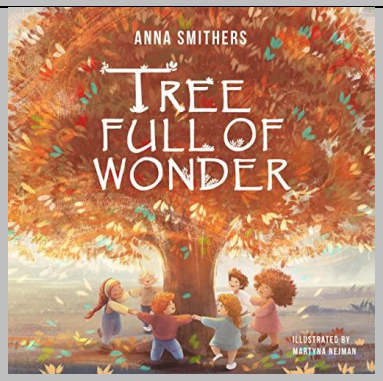
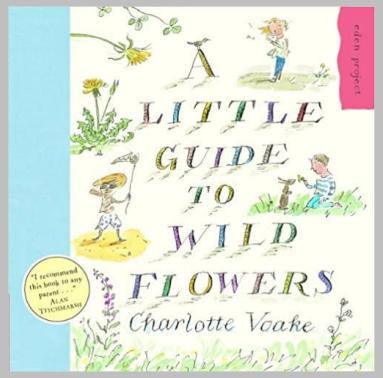
					 A FIRST BOOK of THE SEA Nicola Davies illustrated by Emily Sutton "Spectacular ... you can almost smell the surf between the pages." The Times  A children's picture book about plastic pollution Harry Saves The Ocean! From the international bestselling children's book series n.g.k. With Sylvia Vee Illustrated by Janelle Dimmock

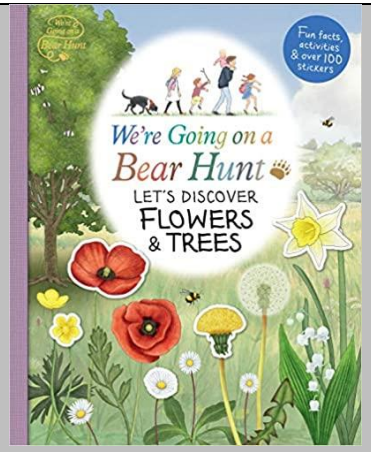
	Life cycles	• Life cycle of a butterfly • Observing the caterpillars and stages of growth • Understand how to care and provide for minibeasts • Similarities and differences of living things	• Provide children with have frequent opportunities for outdoor play and exploration. • Encourage interactions with the outdoors to foster curiosity and give children freedom to touch, smell and hear the natural world around them during hands-on experiences. • Encourage focused observation of the natural world. • Listen to children describing and commenting on things they have seen whilst outside, including plants and animals. • Encourage positive interaction with the outside world, offering children a chance to take supported risks, appropriate to themselves and the environment within which they are in.	Science, experiment, investigation, test, why, plants (leaf, stem, root, flower, seeds), animals, natural, change, grow and environment.	  

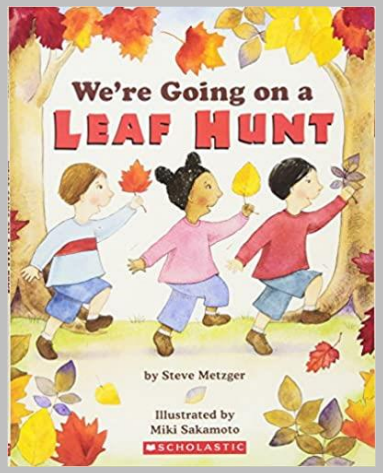
					 MY, OH MY – A BUTTERFLY! All about BUTTERFLIES CAT IN THE HAT TV SHOW! By Tish Rabe · Illustrated by Aristides Ruiz and Joe Mathieu  Julia Donaldson Yuval Zommer The WOOLLY BEAR CATERPILLAR BONUS nature fact book inside! By the author of The GRUFFALO A little caterpillar with big hopes . . .  A Worm Called Wallace A Hero Beneath The Surface

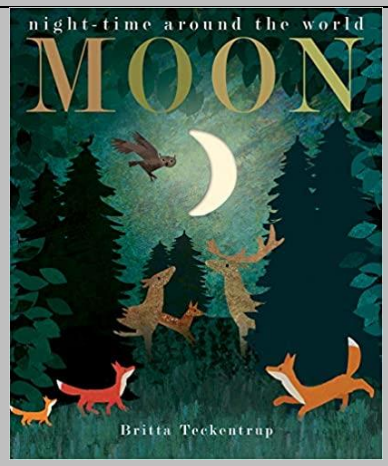
					 
	Growing	• I can name parts of a plant. • I know how to care for growing plants. • I know some similarities and differences in relation to plants.	• Provide children with have frequent opportunities for outdoor play and exploration. • Encourage interactions with the outdoors to foster curiosity and give children freedom to touch, smell and hear the natural world around them during hands-on experiences. • Encourage focused observation of the natural world.	Science, experiment, investigation, test, why, plants (leaf, stem, root, flower, seeds), natural, change, grow, decay, rot, and environment.	

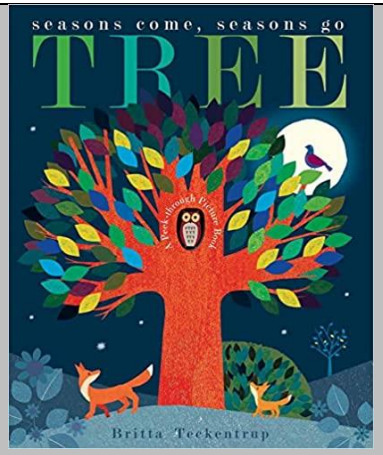
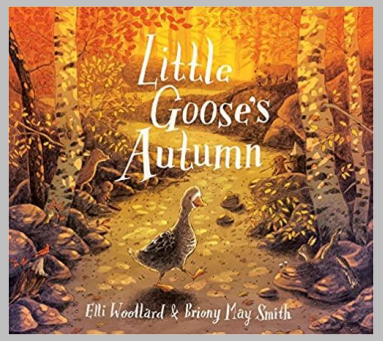
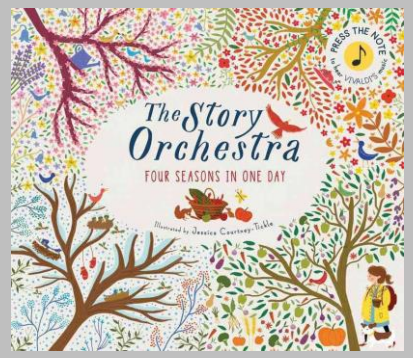
			• Listen to children describing and commenting on things they have seen whilst outside, including plants and animals. • Encourage positive interaction with the outside world, offering children a chance to take supported risks, appropriate to themselves and the environment within which they are in.		
Year 1	Animals including humans	• Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. • Identify and name a variety of common animals that are carnivores, herbivores and omnivores. • Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and	• Use simple charts to communicate findings identify key features. • Ask questions and recognise they can be answered in different ways. • Test ideas suggested to them • Say what they think will happen. • Begin to compare some living things. • Make observations using appropriate senses. • Record observations. • Communicate • observations orally, in drawing, labelling, simple	***Words relating to human senses:*** sense, eye, sight, see, ear, hearing, hear, scent, smell, nose, skin, touch, feel, texture, taste, tongue. ***Words for parts of the body of humans and other animals:*** (external), head, neck, elbow, knee, face, ears, eyes, eyebrow, eyelash, hair, mouth, lips, teeth, tongue, skin, hand, fingers, hip, waist, chest, nostril, nose, cheek, chin, feet, toes, shoulder, fingernails, leg, wing, arm, beak, paw, fur, feather, tail, scales, fin, claws, ankle, hind, fore, whisker. ***Words related to animal classification:***	 

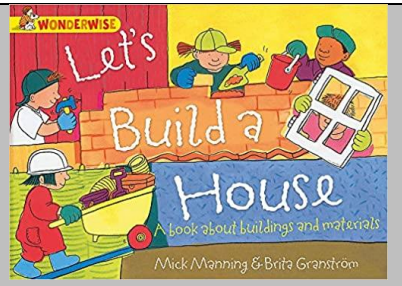
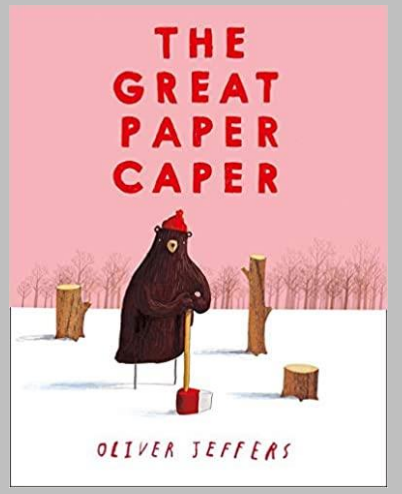
		mammals, including pets). • Identify and name the basic parts of the human body and know which part of the body is associated with each sense.	writing and using ICT. • Make simple comparisons. • Draw and label the basic parts of the human body.	Fish, amphibian, reptile, bird, mammal, human, animal, pet, habitat, environment, carnivore, herbivore, omnivore **Tier 2** blood, senses, young, feathers, fur, scales **Tier 3** mammal, amphibian, reptile, herbivore, carnivore, omnivore	
	Plants	• Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. • Identify and describe the basic structure of a variety of common flowering plants, including trees.	• Draw simple pictures talk about what they see and do. • Use simple charts to communicate findings identify key features. • Ask questions and recognise they can be answered in different ways. • Test ideas suggested to them. • Say what they think will happen. • Make observations using appropriate senses record observations. • Communicate • observations orally, in drawing, labelling, simple	***Words relating to plants:*** branch, flower, root, stem, (stalk), seeds, bulb, seedlings, plants, leaf, leaves, weed, common, garden, wild, tree, evergreen, deciduous, part, grow, growth, vegetable, tree, grass, plant (verb), blossom, (catkin), fruit, seed, trunk, bud, opening (buds). **Tier 2** bud, trunk, branch, bark, seed, wild **Tier 3** nutrients, stem, deciduous, evergreen	 

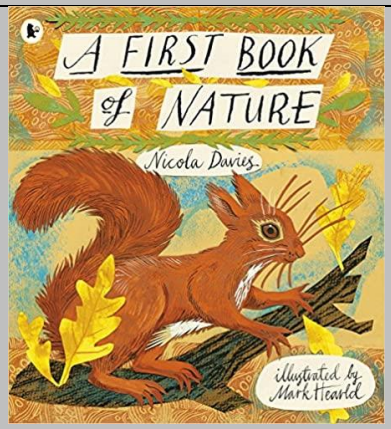
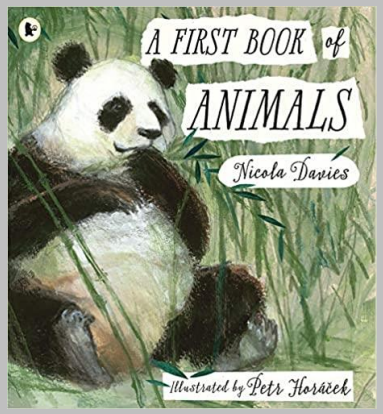
			writing and using ICT. • Make simple comparisons and groupings. • Say what has happened and whether what has happened was what they expected.		

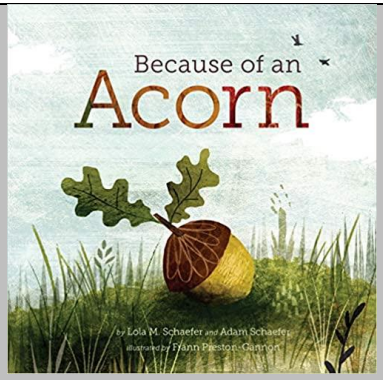
					 
	Everyday materials	• To understand what a material is. • To be able to identify the material and object is made from. • To name a variety of everyday	• Compare and group together a variety of everyday materials on the basis of their simple physical properties. • To ask questions and recognise they can be	***Names of materials:*** metal, plastic, wood, paper, glass, clay, rock, fabric, sand, water, brick, paper, elastic, fabric (and individually named fabric e.g. cotton, wool, leather, polyester, linin, denim) foil, cardboard, tissue paper	

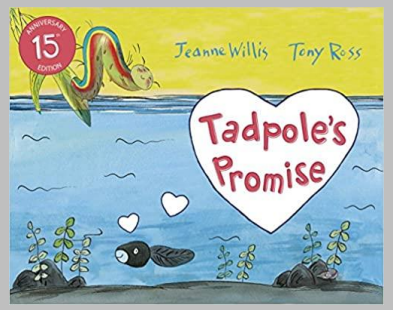
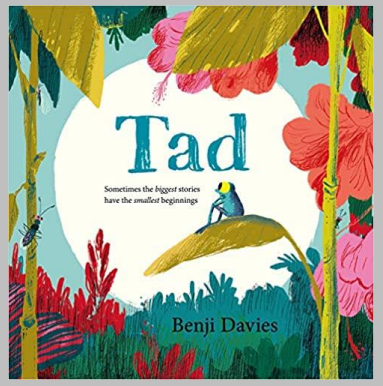
		materials, including wood, metal, plastic, glass, water and rock. • To know the simple physical properties of a variety of everyday materials.	answered in different ways. • Test ideas suggested to them. • Say what they think will happen. • Use first hand experiences to answer questions. • Communicate • observations orally, in drawing, labelling, simple writing and using ICT. • Make simple comparisons and groupings. • Say what has happened and whether what has happened was what they expected.	***Words used to describe materials:*** hard, soft, rough, smooth, shiny, dull, magnetic, transparent, bendy, not-bendy, waterproof, not-waterproof, absorbent, not-absorbent, strong, stretchy, stiff, opaque, transparent **Tier 2** absorb, rough, smooth, waterproof, metal, plastic **Tier 3** materials, properties, flexible, transparent, opaque, physical	
	Seasonal changes	• To know the four seasons and the weather associated with these seasons. • To know that the length of the day changes throughout the year.	• Make observations using appropriate senses. • Record observations. • Communicate • observations orally, in drawing, labelling, simple writing and using ICT. • To observe changes across the four seasons. • To observe and describe weather	***Words relating to seasons:*** spring, summer, autumn, winter, change, year, month, weather, light, dark, day (day length), holidays, festivals (by season), sunrise, sunset ***Words relating to weather:*** chart, forecast, symbol (weather symbol), cold, warm, hot, freezing, (temperature), snow, ice, rain, storm, thunder, wind, windy, wet, dry, sun, sunny, umbrella,	

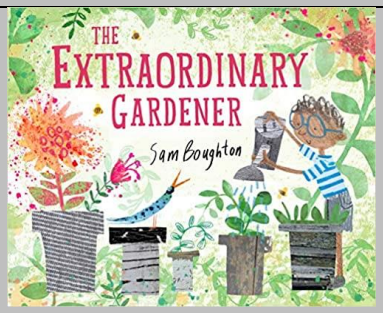
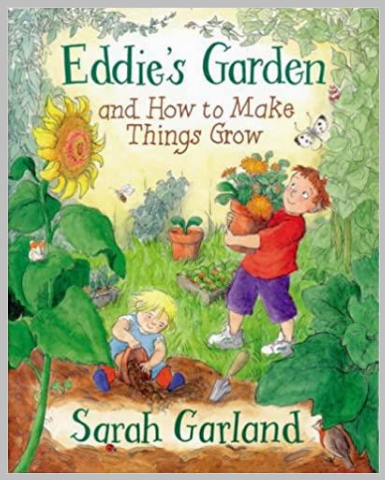
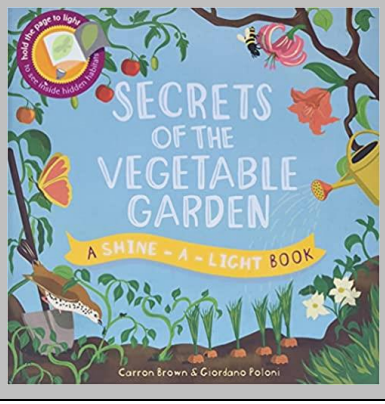
			associated with the seasons and how day length varies. • Draw simple pictures talk about what they see and do. • Ask questions and recognise they can be answered in different ways. • Say what they think will happen. • Use first hand experiences to answer questions. • Make simple comparisons and groupings. • Say what has happened and whether what has happened was what they expected.	raincoat, sunglasses, sun cream, hat, wellington boots, coat, scarf, hat, sandals **Tier 2** dawn, dusk, mild, rotate, soaked, weather **Tier 3** month, season, spring, summer, autumn, winter	  

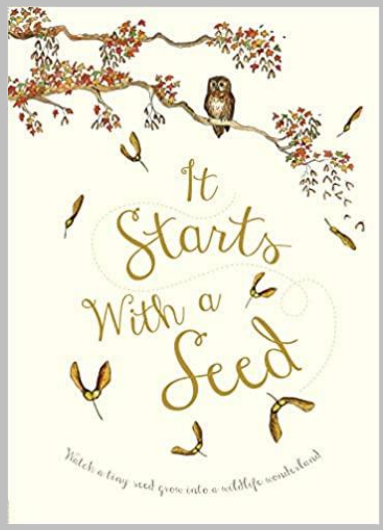
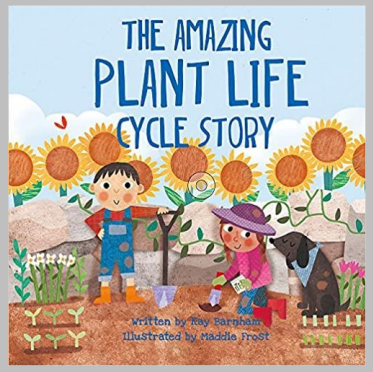
Year 2	Materials	• Name a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard. • Understand why we use certain materials for particular uses. • Understand how the shapes of solid objects can be changed by squashing, bending, twisting and stretching.	• Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. • Describe their observations using some scientific vocabulary. • Use a range of simple texts to find information. • Suggest how to find things out. • Identify key features. • Ask questions. • Use simple equipment provided to aid observation. • Collect and record data (supported by the teacher). • Suggest how they could collect data to answer questions. • Say what has happened- say what their observations show and whether it was what they expected.	***Words relating to describing materials:*** reflective, non-reflective, transparent, opaque, rigid, flexible, strong, weak. ***Words relating to materials uses:*** suitable, unsuitable, property, properties, best, purpose, job. ***Words relating to material changes:*** object, change, squash, squashing, bend, bending, twist, twisting, stretch, stretching. **Tier 2** artificial, brittle, extracted, fabric, manufactured, natural **Tier 3** ceramic, durable, inflexible, reflective, rigid, translucent	 

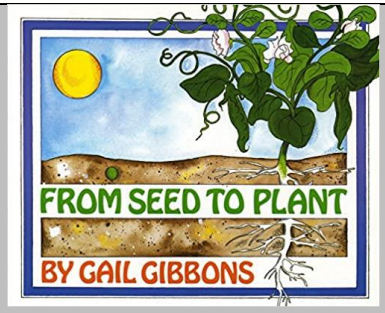
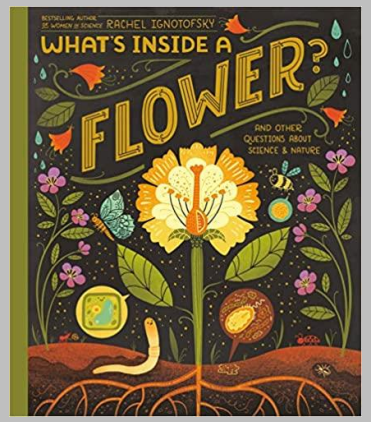
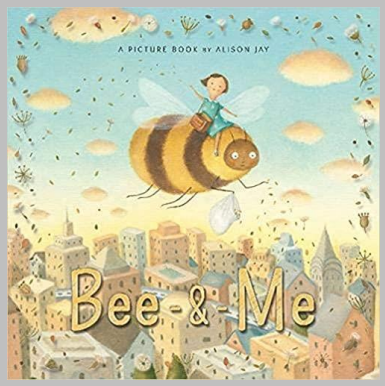
			• Begin to draw simple conclusions and explain what they did. • Begin to suggest improvements in their work.		
	Living things and their habitats	• Understand the difference between things that are living, dead and things that have never been alive. • Have an understanding of the different habitats and animals/plants that live there. • Understand the basic needs of different plants and animals and how they depend on each other. • Identify and name a variety of plants and animals in their habitats, including micro habitats. • Understand how animals obtain their food from plants and other animals, using the idea of a simple food chain.	• Compare the differences between things that are living, dead or have never lived. • Describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other. • Describe their observations using some scientific vocabulary. • Use a range of simple texts to find information. • Suggest how to find things out. • Identify key features. • Ask questions. • Use simple equipment provided to aid observation. • Collect and record data (supported by the teacher).	***Words relating to living things:*** living, alive, dead, never alive, healthy, ***Words relating to habitats:*** live, habitat, micro-habitat (and examples e.g. under a leaf, under a stone or log) home, environment, suited, needs, (basic needs) satisfy, provide (provide for), provides, depend (on each other), variety, food, food chain, consumer, predator, prey, source (of food) water, air, shelter, safety, conditions (of habitats and micro-habitats e.g. wet, dry, dark). Names of habitats e.g. woodland, seashore, desert, rainforest etc. **Tier 2** thrive, depend, producer, consume, prey, predator **Tier 3** oxygen, nutrition, respiration, sensitivity, reproduction, excretion	 

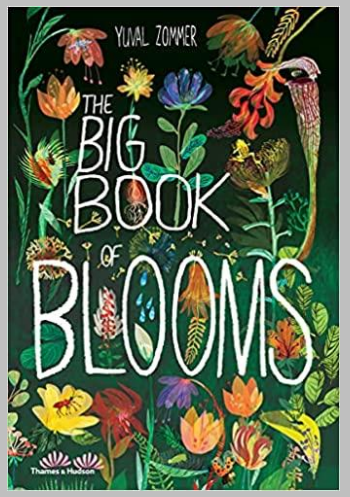
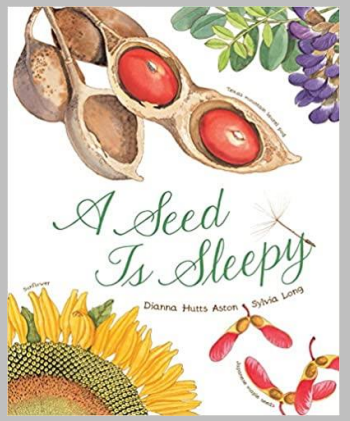
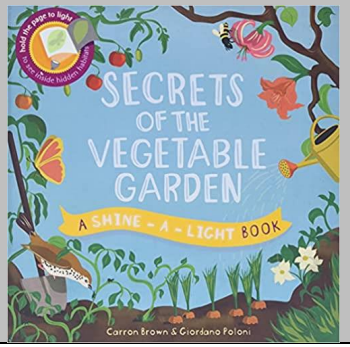
		• An understanding of the names of different sources of food.	• Suggest how they could collect data to answer questions. • Say what has happened- say what their observations show and whether it was what they expected. • Begin to draw simple conclusions and explain what they did. • Begin to suggest improvements in their work. • Compare objects, living things or events make observations relevant to their task begin to recognise when a test or comparison is unfair		

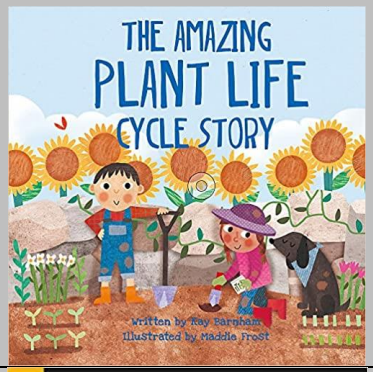
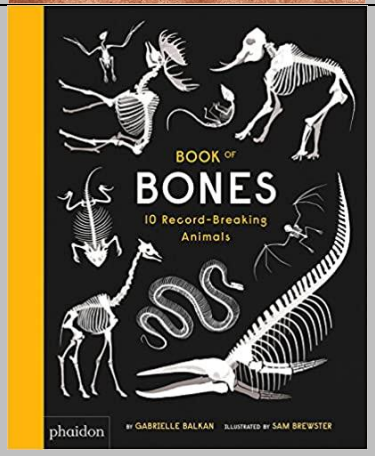
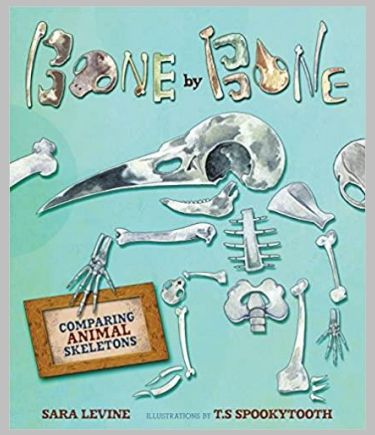
	Animals including humans	• To know that animals, including humans, have offspring which grow into adults. • To know the basic stages in a life cycle for animals, including humans e.g., egg, chick, chicken; spawn, tadpole, frog; baby, toddler, child, teenager, adult. • To know the basic needs of animals, including humans, for survival (water, food and air). • To understand the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.	• Describe their observations using some scientific vocabulary. • Use a range of simple texts to find information. • Suggest how to find things out. • Identify key features. • Asking questions and understanding they can be answered in different ways. • Use simple equipment provided to aid observation. • Collect and record data (supported by the teacher). • Suggest how they could collect data to answer questions. • Say what has happened- say what their observations show and whether it was what they expected. • Begin to draw simple conclusions and explain what they did.	***Words relating to humans/animals*** *(life cycle)**:*** offspring, baby, toddler, child, teenager, adult, elderly person, young, old, grow, growth. ***Words relating to humans/animals*** *(basic needs):* exercise, health, healthy, hygiene, clean, wash, water, food, air, right amounts (of foods). Fruits, vegetables, meat, fish, eggs, beans, dairy, milk, fat, oil, sugar, balance. **Tier 2:** healthy, survive, exercise, heart, lungs, muscles **Tier 3:** hygiene, larva, pupa, vertebrates, invertebrates, metamorphosis	  

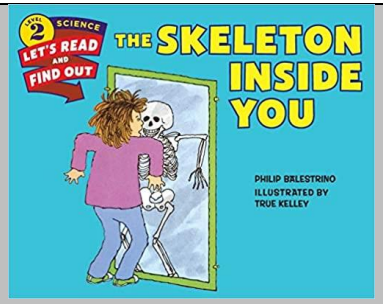
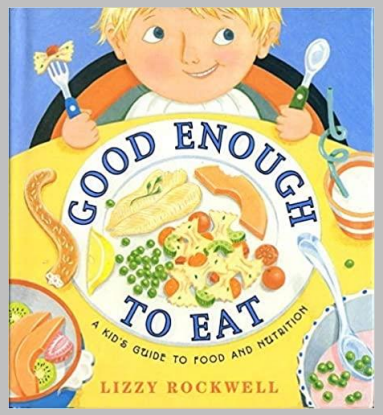
			• Begin to suggest improvements in their work.		
	Plants	• To understand that plants need water, light and a sustainable temperature to grow and stay healthy. • To know the parts of a plant and tree (e.g. roots, shoots, etc.)	• Observe how seeds and bulbs grow into mature plants. • Describe their observations using some scientific vocabulary. • Use a range of simple texts to find information. • Suggest how to find things out. • Identify key features. • Ask questions. • Use simple equipment provided to aid observation. • Collect and record data (supported by the teacher). • Suggest how they could collect data to answer questions. • Say what has happened- say what their observations show and whether it was what they expected. • Begin to draw simple conclusions and	***Words relating to plants:*** mature, germination, growth, survive, healthy, shoot, seedling ***Words relating to growth:*** water, light, (suitable) temperature, warmth, grow, healthy, cold, dark, wither, dry, limp, dry, green, yellow. **Tier 2:** thrive, survive, dependent, sustain, harsh, wither, detailed, accurate, dormant **Tier 3:** germination, perennial, carbon dioxide, glucose, clone	  

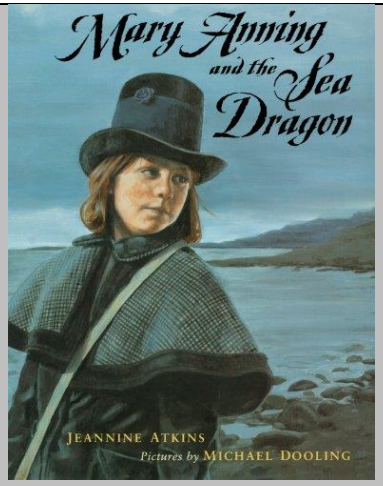
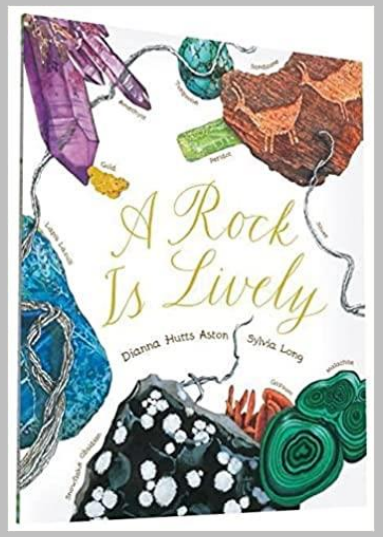
			explain what they did. • Begin to suggest improvements in their work. • Compare objects, living things or events make observations relevant to their task begin to recognise when a test or comparison is unfair		 

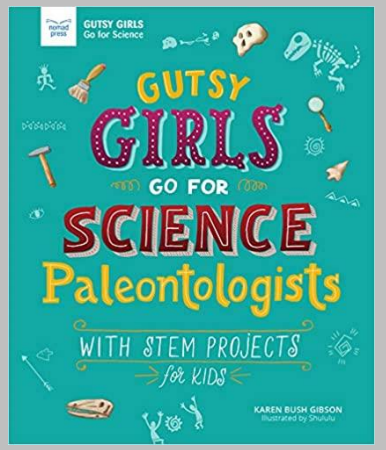
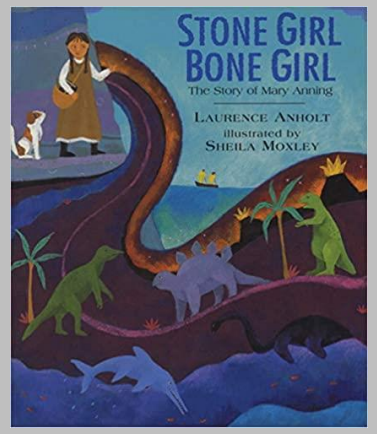
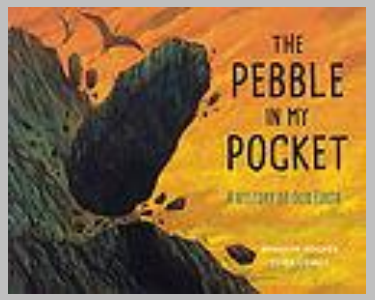
Year 3	Plants	• To know the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. • To know the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant. • To know how water is transported within plants. • To understand the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.	• To investigate the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow). • To investigate the way in which water is transported within plants. • To record their observations • in written, pictorial and diagrammatic forms select the appropriate format to record their observations. • To put forward own ideas about how to find the answers to questions recognise the need to collect data to answer questions. • To carry out a fair test with support. To recognise and explain why it is a fair test with support. • Make relevant observations. • Measure using given equipment. • Select equipment from a limited range.	***Words relating to plant parts:*** function, job, role, part, root, stem, trunk, (bark) leaves, flowers, branch, (stalk), seeds, bulb, seedlings, petal. ***Words relating to plant growth:*** water, light air, growth, nutrients, soil, fertilizer, needs, (requirements), grow, growth, healthy, transported, conditions, damp, wet, dry, dark, light, hot, warm, cool, cold, (use comparatives e.g. hot, hotter, hottest) space/room (to grow). ***Words relating to plant life cycle:*** life cycle, stage, pattern, seeds, fruit, berry, pollinate, seed formation, pollination, seed dispersal **Tier 2** adapt, essential, glucose, transport, variety, vital **Tier 3** Transpiration, stoma, pollination, stamen, pistil, photosynthesis	  

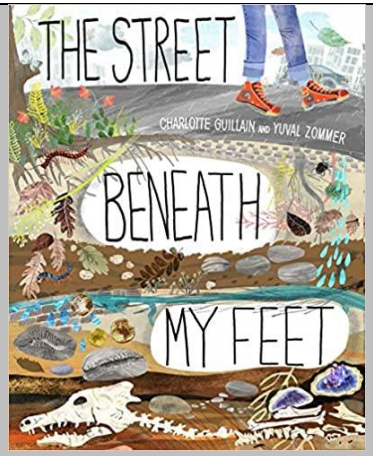
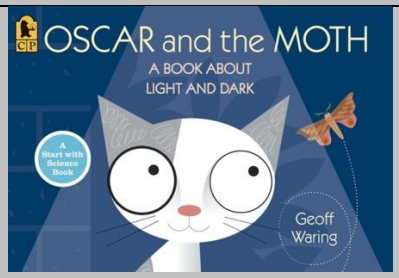
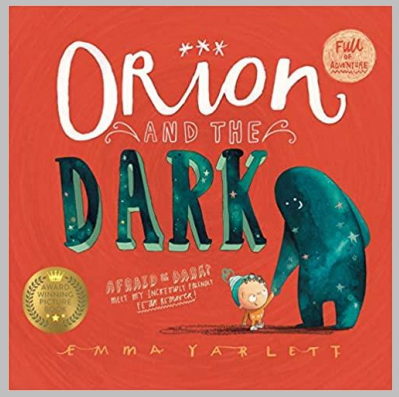
			• Begin to offer explanations for what they see and communicate in a scientific way what they have found out. • Begin to identify patterns • in recorded measurements. • Suggest improvements in their work. • Evaluate their findings.		  

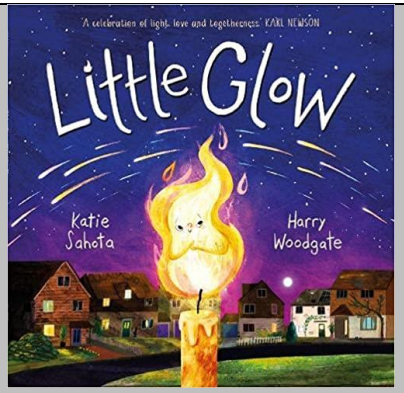
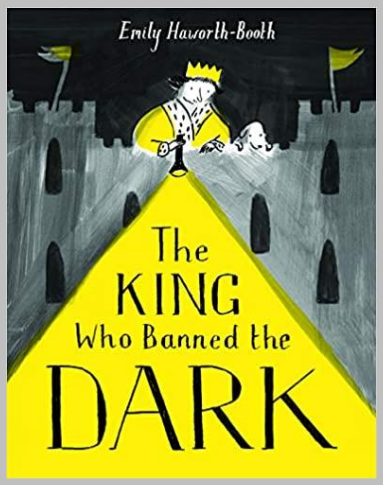
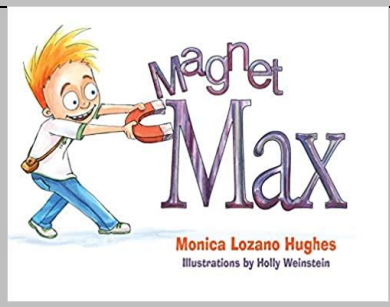
					
	Animals, including humans	• To know that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat. • To know that humans and some other animals have skeletons and muscles for support, protection and movement.	• To record their observations • in written, pictorial and diagrammatic forms select the appropriate format to record their observations. • To put forward own ideas about how to find the answers to questions recognise the need to collect data to answer questions. • To carry out a fair test with support. To recognise and explain why it is a fair test with support. • Make relevant observations. • Measure using given equipment. • Select equipment from a limited range.	***Words relating to nutrition:*** nutrition, nutrients, food, right type, right amount, food type, food group, carbohydrate, protein, vitamins, minerals, fat, diet, dietary, dietary fibre, sugars, fats, oils, water, balance, balanced diet, healthy, less healthy, meals. ***Words for parts of the body of humans and other animals:*** internal, skeleton, muscles, support, protection, movement skull, ribs, pelvis, shoulder blade, spine/vertebrae, joints, sockets, rotate, bend, bones, tendons, vertebrate, invertebrate, (external skeleton). ***Words related to animal classification:*** vertebrate, invertebrate.	 

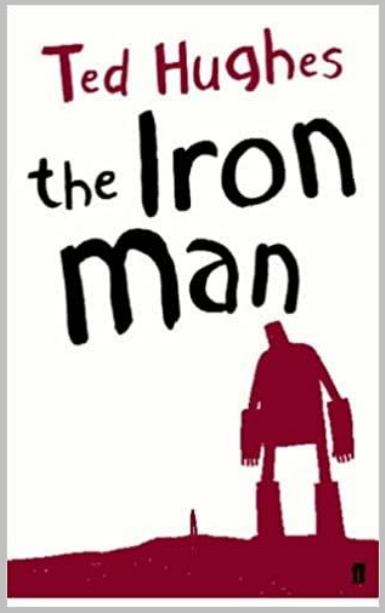
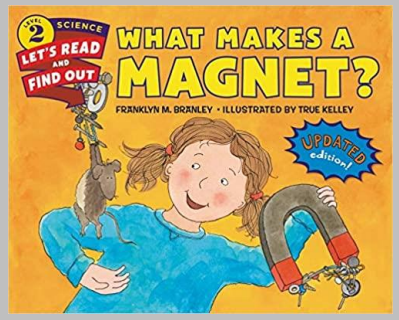
			• Begin to offer explanations for what they see and communicate in a scientific way what they have found out. • Begin to identify patterns • in recorded measurements. • Suggest improvements in their work. • Evaluate their findings.	**Tier 2** minerals, skeleton, skull, voluntary, involuntary, nerves **Tier 3** biceps, triceps, vertebrae, vitamins, proteins, carbohydrates	 

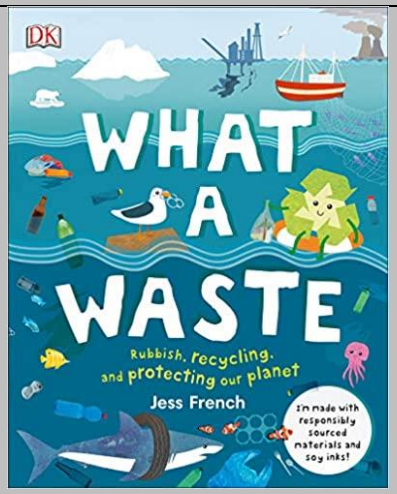
	Rocks	• To be able to identify different kinds of rocks on the basis of their appearance and simple physical properties. • To know how fossils are formed when things that have lived are trapped within a rock. • To know that soils are made from rocks and organic matter.	• Record their observations • in written, pictorial and diagrammatic forms select - the appropriate format to record their observations. • To compare and group together different kinds of rocks based of their appearance and simple physical properties. • To identify key features. • Record their observations • in written, pictorial and diagrammatic forms select the appropriate format to record their observations. • To put forward own ideas about how to find the answers to questions recognise the need to collect data to answer questions. • To carry out a fair test with support. To recognise and explain why it is a fair test with support. • Make relevant observations.	***Words related to names and properties of rocks:*** rock, stone, pebble, boulder, soil, grains, crystals, natural material, everywhere, smooth, rough, solid, crumbly, hard, soft, texture, absorb water, let water through, (permeable/impermeable) scratch, mark, streak, worn (away) colour. ***Names of particular rocks including but not exclusively:*** marble, chalk, granite, sandstone, slate, pumice, limestone, sedimentary (although rock cycle is not required) fossils. ***Words related to soils:*** soil, earth, broken-down, dead plants, rocks, rock type, soil type, local, weather, worn away, particle (size and colour) sandy soil, clay soil, chalky soil, peat, loam, drainage, (permeable, impermeable) air spaces. ***Words related to fossils:*** ancient, living, dead, plants, animals, trapped, sedimentary rock, type of rock, changed, Mary Anning, (palaeontologist). **Tier 2**	 

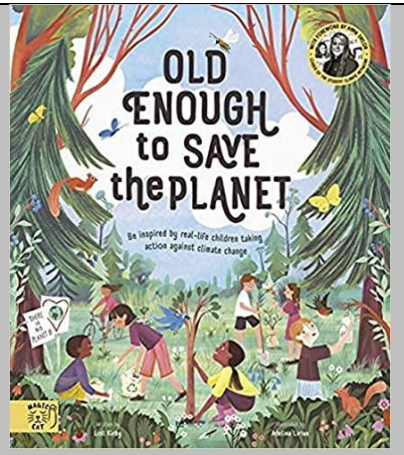
			• Measure using given equipment. • Select equipment from a limited range. • Begin to offer explanations for what they see and communicate in a scientific way what they have found out. • Suggest improvements in their work. • Evaluate their findings.	cemented, compacted, decay, prehistoric, soil, transform **Tier 3** fossil, igneous, magma, metamorphic, minerals, sedimentary	  

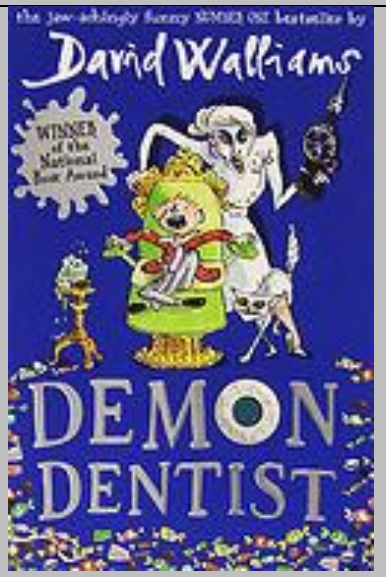
					
	Light	• Recognise that they need light in order to see things and that dark is the absence of light. • Notice that light is reflected from surfaces. • Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. • Recognise that shadows are formed when the light from a light source is blocked by an opaque object.	• Find patterns in the way that the size of shadows change. • Use pictures, writing, diagrams and tables as directed by their teacher use simple texts, directed by the teacher, to find information. • Record their observations • in written, pictorial and diagrammatic forms select - the appropriate format to record their observations. • To put forward own ideas about how to find the answers to questions recognise the need to collect	***Words relating to light:*** light, light source, names of light sources e.g. torch, Sun, bonfire., absence, dark/darkness, reflect, reflective, mirror, shadow, what light does (behaves) block, direct/ direction, distance, transparent, opaque, translucent. ***Words related to safety:*** Sun, danger, look, directly, protect, safety, safe, sunglasses, sun cream, sun hat, shade. **Tier 2** absence, cast (shadow), impenetrable, reflect, shadow, source (light) **Tier 3** constant, dependent, independent, illuminate, translucent, variable	 

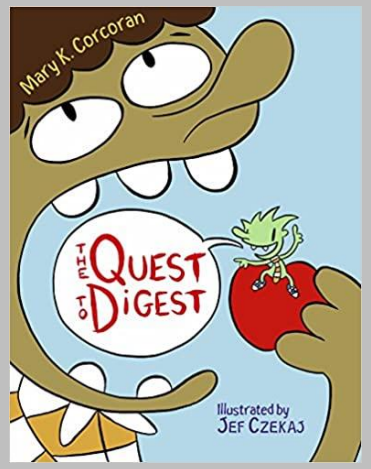
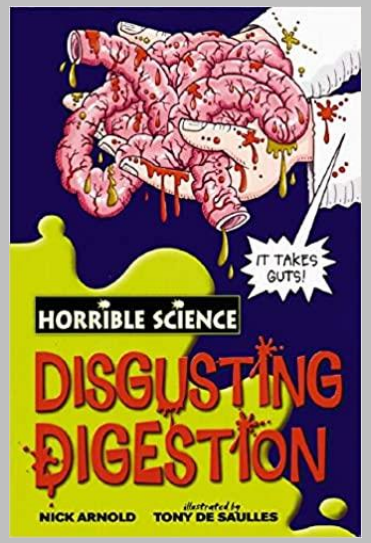
			data to answer questions. • To carry out a fair test with support. To recognise and explain why it is a fair test with support. • Make relevant observations. • Measure using given equipment. • Select equipment from a limited range. • Begin to offer explanations for what they see and communicate in a scientific way what they have found out. • Suggest improvements in their work. • Evaluate their findings.		 
	Forces and magnets	• To know that some forces need contact between two objects, but magnetic forces can act at a distance. • To know that magnets attract or repel each other and attract some materials and not others.	• Compare how things move on different surfaces. • Observe how magnets attract or repel each other and attract some materials and not others. • To compare and group together a variety of everyday	***Words relating to forces:*** push, pull, pulling, pushing, move, contact, touching, contact force, distance/non-contact force, act at a distance. ***Words relating to magnets:*** shape, bar, horseshoe, ring, button, strength, weak, strong, attract, repel, pole, magnetic, magnetic materials, non-	

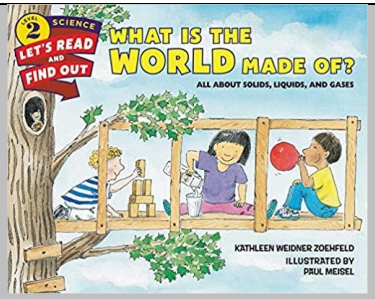
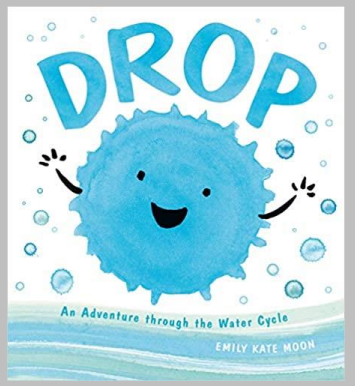
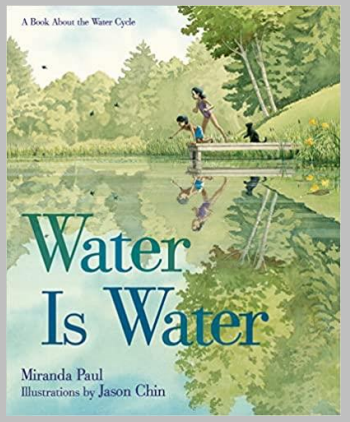
		• To identify magnetic materials. • To know that magnets have two poles.	materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials. • To predict whether two magnets will attract or repel each other, depending on which poles are facing. • Use pictures, writing, diagrams and tables as directed by their teacher use simple texts, directed by the teacher, to find information. • Record their observations • in written, pictorial and diagrammatic forms select - the appropriate format to record their observations. • To put forward own ideas about how to find the answers to questions recognise the need to collect data to answer questions. • To carry out a fair test with support. To recognise and explain why it is a	magnetic material, north, south, metal, iron, steel. **Tier 2** consequence, contact, force, attract, north, south **Tier 3** Magnet, resistance, friction, repel, pole, magnetic field	 

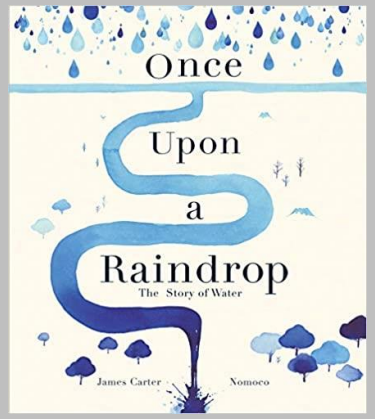
			fair test with support. • Make relevant observations. • Measure using given equipment. • Measure using given equipment. • Select equipment from a limited range. • Begin to offer explanations for what they see and communicate in a scientific way what they have found out. • Suggest improvements in their work. • Evaluate their findings.		
Year 4	Living things and their habitats	• To recognise that living things can be grouped in a variety of ways • To explore and use classification keys to help group, identify and name a variety of living things in their local	• Identify and classify how a variety of living things can be grouped and display this information in a variety of ways. Go outside and investigate our local environment. Compare this with research of wider environments. • Record observations, comparisons and	Environment, flowering, non-flowering, plants, animals and vertebrate. ***Words related to classification of living things:*** Invertebrates- snails, slugs, worms, spiders, insects. Vertebrates- fish, amphibians, reptiles, birds, mammals. Plants – flowering plants and non-flowering plants. ***Words related to changing environments:***	

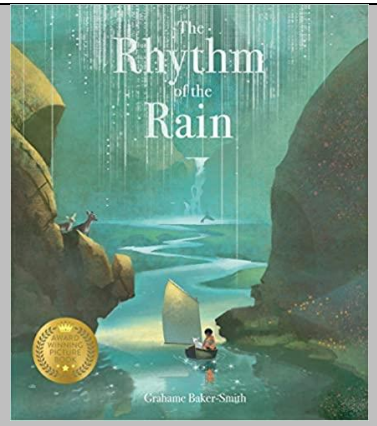
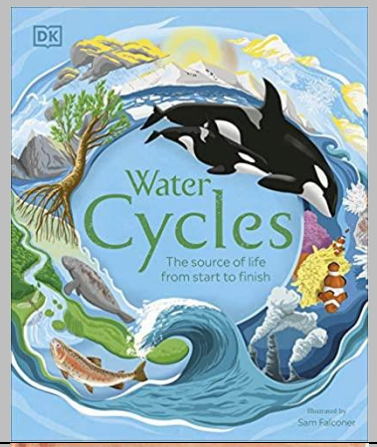
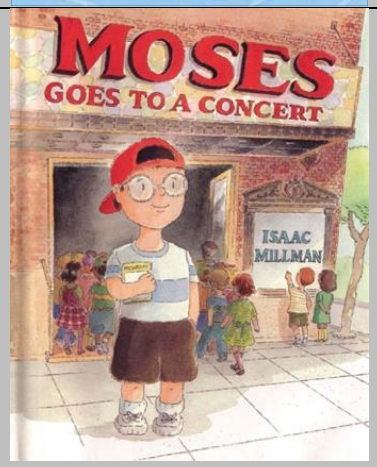
		and wider environment • To recognise that environments can change and that this can sometimes pose dangers to living things	measurements using tables and bar charts begin to plot points to form a simple graph use graphs to point out and interpret patterns in their data. • Carry out measurement accurately make a series of observations, comparisons and measurements select and use suitable equipment to make a series of observations and measurements adequate for the task. • Select information from a range of sources provided for them. • With help, pupils begin to realise that scientific ideas are based on evidence. • Explore evidence from a range of sources: fiction and non-fiction books, current news articles to relate this to current environmental issues, documentaries, and the internet. • Suggest improvements in their work, giving	Danger, population, development, litter and deforestation. **Tier 2:** Classification, environment, interdependence, interact, beneficial and hierarchy. **Tier 3:** Vertebrate, invertebrate, biotic, ecosystem, species and niche.	 

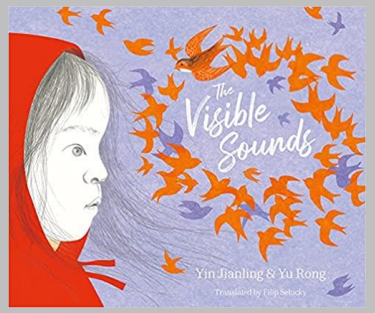
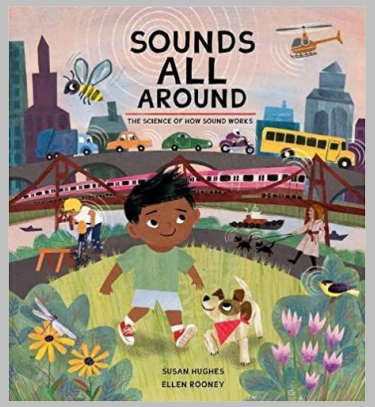
			reasons and in the work of environmentalists.		
	Animals, including humans	• To describe the simple functions of the basic parts of the digestive system in humans • To identify the different types of teeth in humans and their simple functions • To construct and interpret a variety of food chains, identifying producers, predators and prey	• To identify teeth of humans using real-life examples, describe their functions and record their observations in a systematic way. • To identify and classify a variety of plants and animals, including humans as predators, prey and producers. • To carry out a fair test of the effect of different liquids and poor dental hygiene on the function of teeth. With help, pupils begin to realise that scientific ideas are based on evidence.	***Words related to the digestive system:*** Human digestive system, mouth, tongue-mixes, moistens, saliva, oesophagus, transports, stomach acid, enzymes, small intestine and large intestine. ***Words related to teeth:*** Brush, floss, Incisors- cutting and slicing, Canines- ripping and tearing, Molars-chewing and grinding. ***Words related to food chains:*** Carnivore, herbivore, omnivore, food chain, Sun, producers, prey and predators.	

			• To show in the way they perform their tasks how to vary one factor while keeping others the same decide on an appropriate approach in their own investigations to answer questions describe which factors they are varying and which will remain the same and say why. • To select information from a range of sources provided for them. • To predict outcomes using previous experience and knowledge and compare with actual results begin to relate their conclusions to scientific knowledge and understanding suggest improvements in their work, giving reasons.	**Tier 2:** Expel, compact, digestion, acid, stomach and intestines. **Tier 3:** Incisor, canine, molar, enzyme, saliva and peristalsis.	 

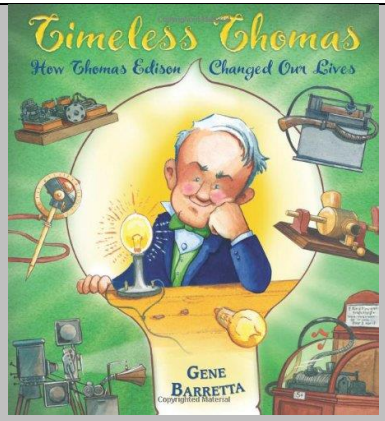
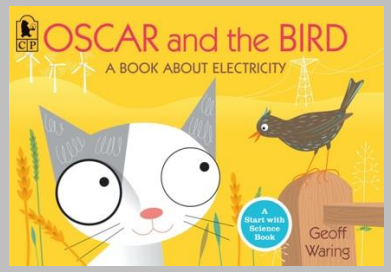
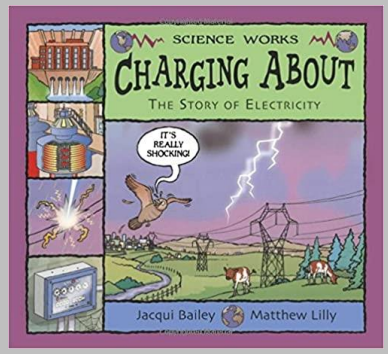
	States of matter	• To compare and group materials together, according to whether they are solids, liquids or gases • To observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) • To identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature	• Record observations, comparisons and measurements using tables and bar charts begin to plot points to form a simple graph use graphs to point out and interpret patterns in their data. • Select information from a range of sources provided for them • With help, pupils begin to realise that scientific ideas are based on evidence • show in the way they perform their tasks how to vary one factor while keeping others the same decide on an appropriate approach in their own investigations to answer questions describe which factors, they are varying, and which will remain the same and say why. • Carry out measurement accurately make a series of observations, comparisons and measurements select and use suitable equipment	Air, oxygen, powder, grain, granular and crystals. ***Words related to changing state:*** Solid, liquid, gas, freeze, solidify, melting ice, water, steam, water vapour, point, molten, heated, heating, melt, cooled, cooling, boil, temperature, degrees and Celsius. **Tier 2:** Permanent, particle, solid, liquid, gas and vapour. **Tier 3:** Evaporate, condense, melt, matter, state and volume.	  

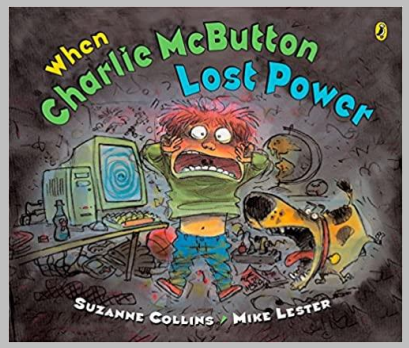
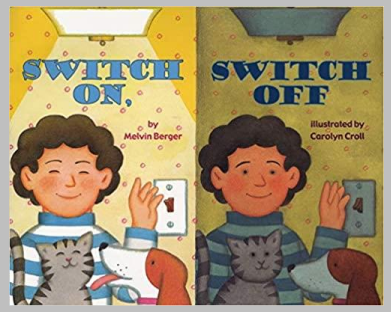
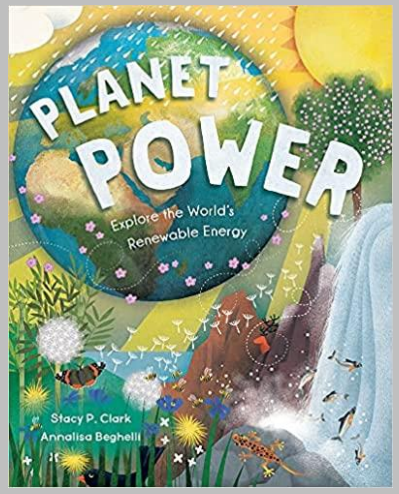
			make a series of observations and measurements adequate for the task. • Predict outcomes using previous experience and knowledge and compare with actual results begin to relate their conclusions to scientific knowledge and understanding suggest improvements in their work, giving reasons.		 

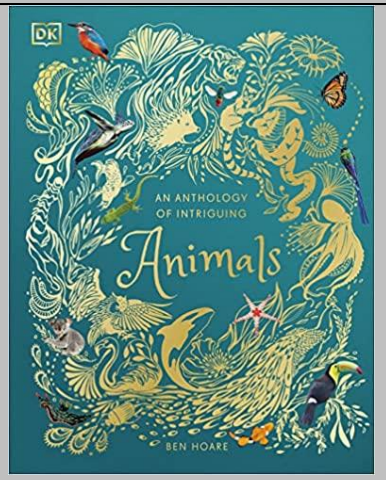
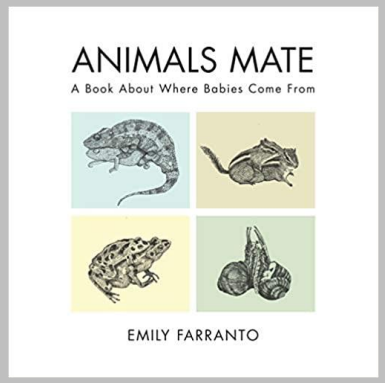
					 
	Sound	• To identify how sounds are made, associating some of them with something vibrating • To recognise that vibrations from sounds travel through a medium to the ear	• Observe how sounds are made by creating instruments out of recycled materials. Explore how to vary one factor to change the sound. Explore how to vary the pitch of the sounds as well as the volume. • Identify the sound levels in different areas of the room or building and	***Words related to sound formation:*** Sound, sound source, noise, vibrate, travel, solid, liquid, gas, vibrations and insulation. ***Words related to the changing of sounds:*** pitch, tune, high, low, volume, loud, quiet, fainter and muffle. ***Words related to musical instruments:***	

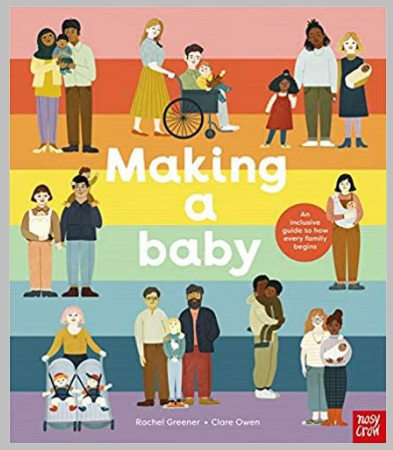
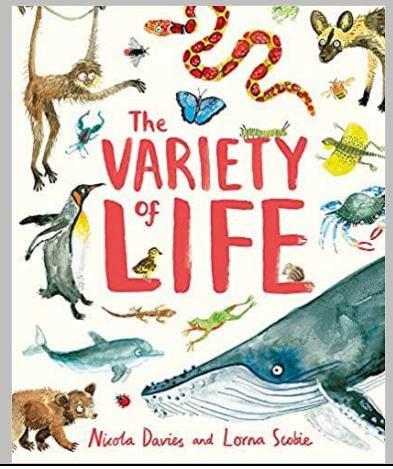
		• To find patterns between the pitch of a sound and features of the object that produced it • To find patterns between the volume of a sound and the strength of the vibrations that produced it • To recognise that sounds get fainter as the distance from the sound source increases	discuss reasons for this variation. • Use appropriate equipment (data loggers on Scientific journal) to measure sound decibels. • Investigate how to muffle a sound, recapping the children's knowledge of materials to consider changing the variables. • Predict what happens to the sound as you increase the distance from the source. Explore if the same results occur with all sound sources. • Conclude from own observations and scientific evidence, the findings. • Record observations, comparisons and measurements using tables and bar charts begin to plot points to form a simple graph use graphs to point out and interpret patterns in their data. • Carry out measurement accurately make a	instrument, percussion, strings, brass, woodwind, and tuned instruments. **Tier 2:** Produce, property, source, frequent, regular and affect. **Tier 3:** Vibrate, pitch, volume, medium, vacuum and sound wave.	  

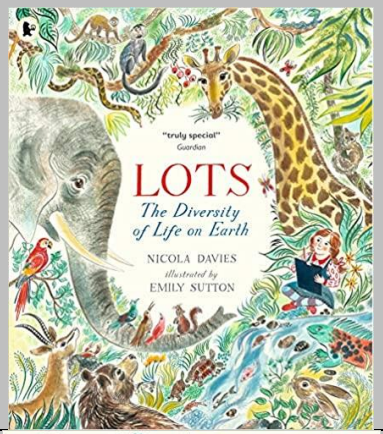
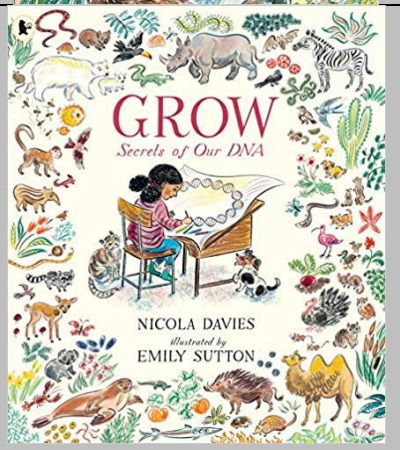
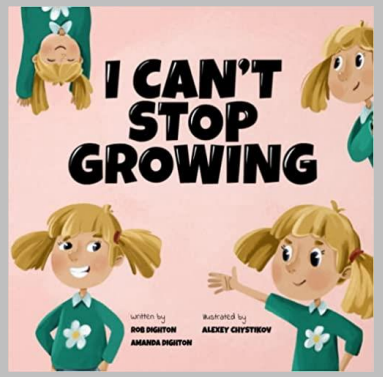
			series of observations, comparisons and measurements select and use suitable equipment make a series of observations and measurements adequate for the task. • Show in the way they perform their tasks how to vary one factor while keeping others the same decide on an appropriate approach in their own investigations to answer questions describe which factors they are varying and which will remain the same and say why. • Predict outcomes using previous experience and knowledge and compare with actual results begin to relate their conclusions to scientific knowledge and understanding suggest improvements in their work, giving reasons.		

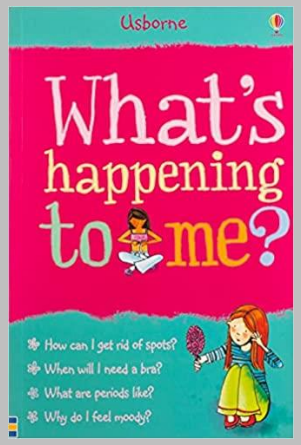
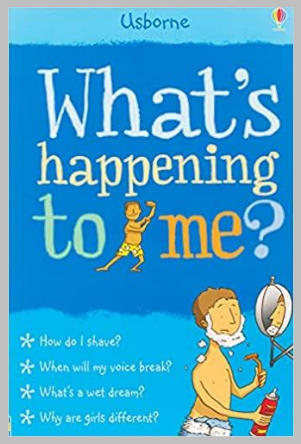
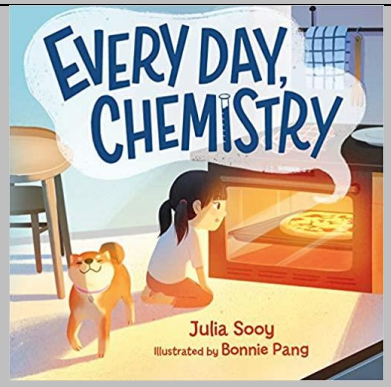
	Electricity	• To identify common appliances that run on electricity • To construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers • To identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery • To recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit • To recognise some common conductors	• Investigate current electrical items to begin to explain how electricity is used in each. • Record observations, comparisons and measurements using tables and bar charts begin to plot points to form a simple graph use graphs to point out and interpret patterns in their data • With help, pupils begin to realise that scientific ideas are based on evidence. • Research and find out information on Thomas Edison. Explore the evidence that he had. • Identify and group common appliances into mains electricity and battery powered. • Explore and vary simple circuits by changing the components. Ch create their own switches and incorporate these to observe the	***Words related to electricity:*** Appliances, electricity and mains. ***Words related to circuit components:*** switch, open, closed, components, plug, motor, electrical circuit, cell, wire, bulb and buzzer. ***Words related to materials (conductors and insulators):*** insulators, wood, rubber, plastic, glass, conductors, metal and water. ***Words related to electrical safety:*** danger, electrical safety and sign. **Tier 2:** Associate, identify, portable portable, effect, appliance and series. **Tier 3:** Component, electrical insulator, electrical conductor, circuit, hypothesis and variable.	  

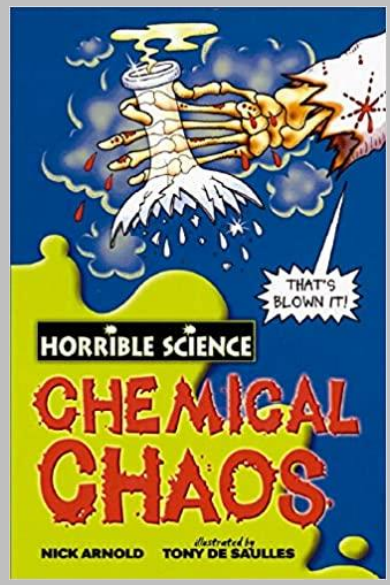
			and insulators, and associate metals with being good conductors	effect of an open or closed switch on the flow of electricity. • Show in the way they perform their tasks how to vary one factor while keeping others the same decide on an appropriate approach in their own investigations to answer questions describe which factors they are varying and which will remain the same and say why. • Explore and investigate different materials for being good conductors or insulators. • Classify these materials based on conductivity. Record results in a table. • Predict outcomes using previous experience and knowledge and compare with actual results begin to relate their conclusions to scientific knowledge and		  

			understanding suggest improvements in their work, giving reasons. • Explore how to light the bulb without using wires and instead using other materials.		
Year 5	Living things and their habitats	• To describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird • To describe the life process of reproduction in some plants and animals	• To identify and classify a variety of animals into their animal groups. • Compare and describe the differences in life cycles based on scientific evidence and from gathering information from a range of sources. • To use appropriate scientific language and conventions to communicate quantitative and qualitative data select a range of appropriate sources of information including books, internet and CD Rom. • To use previous knowledge combined with experimental evidence to	***Words related to living things and their habitats:*** Plants, animals, vegetable garden, flower border reproduction, ***Words related to plant reproduction:*** Sexual, asexual, fertilisation, germination, pollination, stamen and stigma. ***Words related to animal reproduction:*** Sexual and fertilisation. ***Words related to life cycles:*** mammal, amphibian, insect, bird, similarities, and differences. **Tier 2:** Deduce, process, re-form, transform, adolescence and contrast. **Tier 3:** Embryo, sexual, metamorphosis, incubate,	 

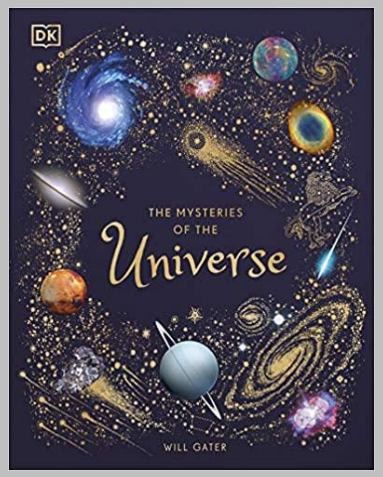
				provide scientific explanations.	biochemical and fertilisation.	  

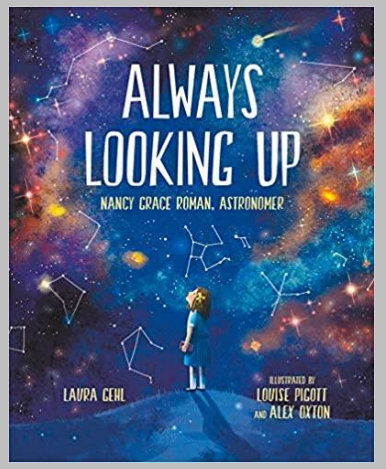
					
	Animals, including humans	• To describe the changes as humans develop to old age	• Identify and compare the similarities and differences between humans at different stages of the life cycle. • To use appropriate scientific language and conventions to communicate quantitative and qualitative data select a range of appropriate sources of information including books, internet and CD Rom. • To use previous knowledge and experience combined with experimental evidence to provide scientific explanations.	***Words related to changes:*** Puberty, development, baby, infancy, toddler, childhood, teenager, adolescence, adulthood (early, middle and late). ***Words related to reproduction:*** Fertilisation, reproduce, asexual and sexual reproduction, life cycle and gestation. **Tier 2:** Length, mass, chronological, grows, development, diverse, unique, generation, mature and equipped. **Tier 3:** Adolescence, puberty, gestation, embryo, foetus and womb.	 

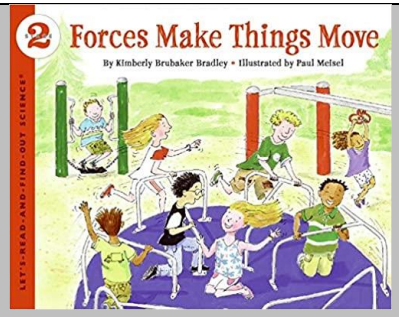
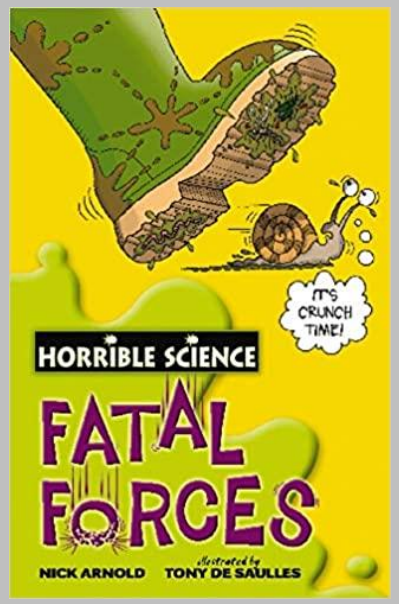
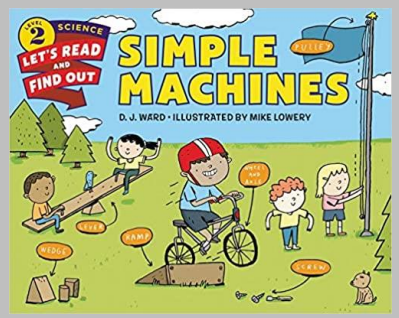
					 
	Properties and changes of materials	• To compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity	• To identify and classify a variety of everyday materials based on their properties. • To record observations systematically • To use appropriate scientific language and conventions to communicate	***Words related to properties of materials:*** Properties, hardness, solubility, transparency, conductive, response to magnets, solids, liquid, gas, conductivity, insulation, chemical, opaque and translucent. ***Words related to changes of materials:*** Dissolve, solution, solute, separate, filtering,	

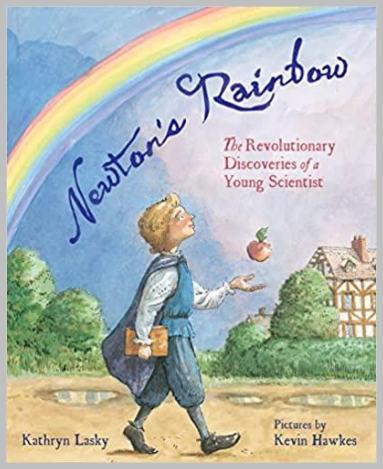
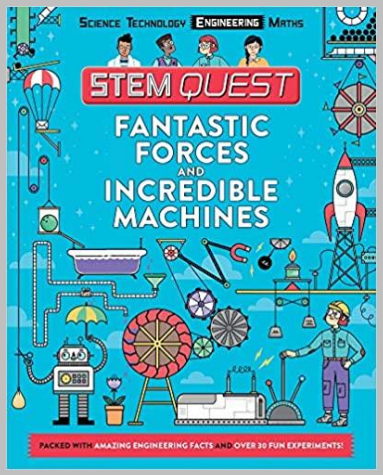
		(electrical and thermal), and response to magnets • To know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution • To use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating • To give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic	quantitative and qualitative data • To gather information from a range of appropriate sources of information including books and internet research. • To use previous knowledge and experience combined with experimental evidence to provide scientific explanations • To recognise the key factors to be considered in carrying out a fair test • To make a series of observations, comparisons and measurements with increasing precision select apparatus for a range of tasks plan to use apparatus effectively • To begin to make repeat observations and measurements systematically • To make predictions based on their scientific knowledge and understanding • To draw conclusions that	sieving, evaporating, reversible and irreversible changes, mixing, evaporation, melting, rusting, residue and condensing. **Tier 2:** Property, particle, separate, combine, recover and comparative. **Tier 3:** Atom, molecule, chemical changes, physical changes, reversible and reaction.	

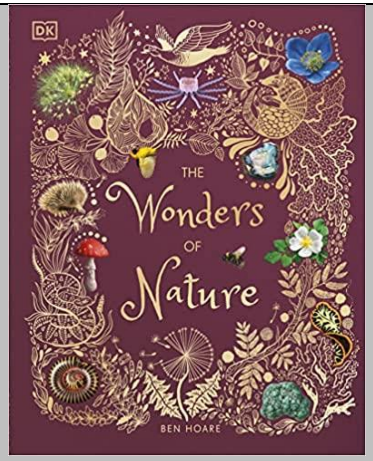
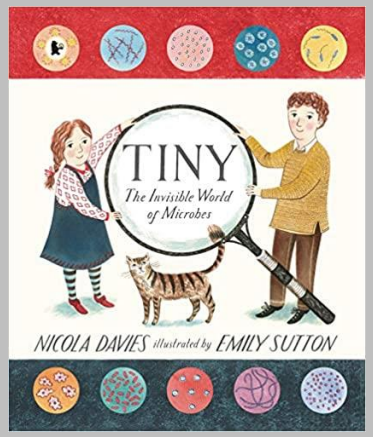
		• To demonstrate that dissolving, mixing and changes of state are reversible changes • To explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda	are consistent with the evidence relate evidence to scientific knowledge and understanding offer simple explanations for any differences in their results • To make practical suggestions about how their working methods could be improved		
	Earth and space	• To describe the movement of the Earth and other planets relative to the sun in the solar system • To describe the movement of the moon relative to the Earth	• To use appropriate scientific language and conventions to communicate quantitative and qualitative data • To gather information from a range of appropriate sources of information including books and internet research	***Words related to planets of the solar system:*** Mercury, Venus, Mars, Jupiter, Saturn, Uranus, Neptune, Pluto, dwarf planet, Earth, planets, Sun, solar system, Sphere, spherical, Moon and celestial body. ***Words related to the movement of the planets:*** Rotate, rotation, spin, axis, night and day, orbit	

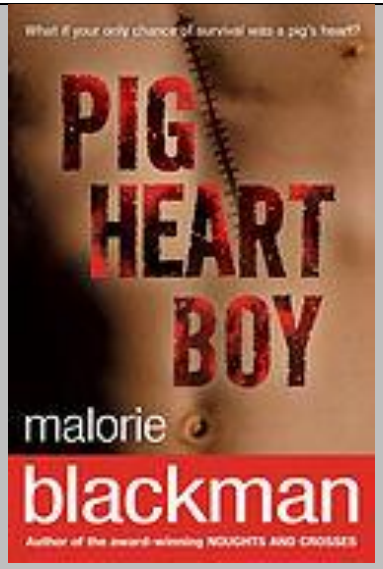
		• To describe the sun, Earth and moon as approximately spherical bodies • To use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky	• To use previous knowledge and experience combined with experimental evidence to provide scientific explanations • To make predictions based on their scientific knowledge and understanding • To draw conclusions that are consistent with the evidence and relate evidence to scientific knowledge and understanding.	and revolve. ***Words related to the moon's phases:*** Shadow clocks, sundials, moon phases, astronomical clocks. **Tier 2:** Luminous, phenomenon, attraction, approximately, relative and apparent. **Tier 3:** Orbit, axis, crescent, gravitational, waxing and waning.	 

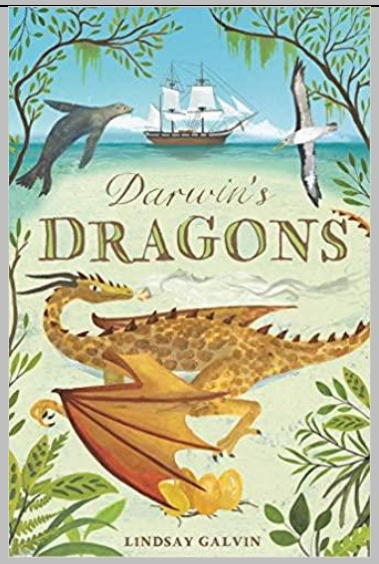
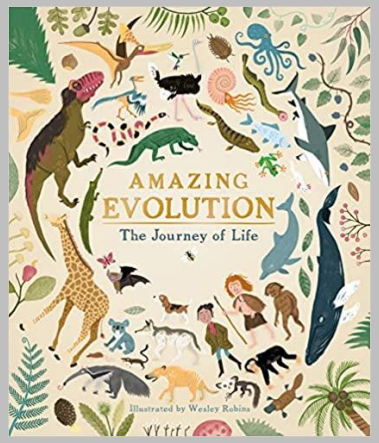
					 ALWAYS LOOKING UP NANCY GRACE ROMAN, ASTRONOMER LAURA GEHL ILLUSTRATED BY LOUISE PICOTT AND ALEX OXTON  It Started with a Big Bang The Origin of Earth, You and Everything Else Floor Bali Sebastiaan Van Doninck

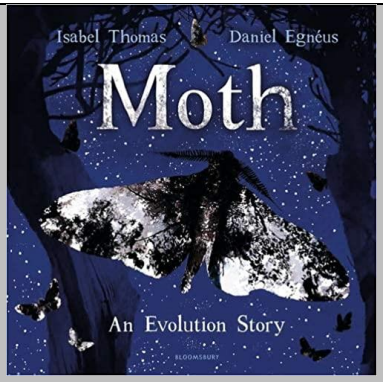
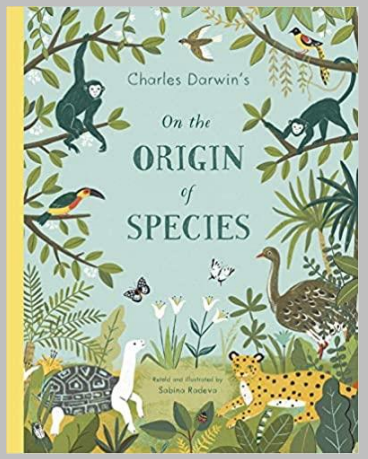
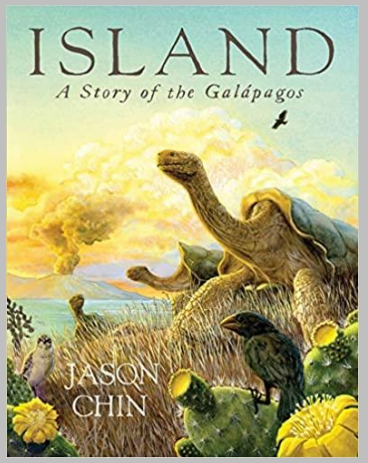
	Forces	• To explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object • To identify the effects of air resistance, water resistance and friction, that act between moving surfaces • To recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect	• To record observations systematically • To use appropriate scientific language and conventions to communicate quantitative and qualitative data • To gather information from a range of appropriate sources of information including books and internet research. • To use previous knowledge and experience combined with experimental evidence to provide scientific explanations • To recognise the key factors to be considered in carrying out a fair test • To make a series of observations, comparisons and measurements with increasing precision select apparatus for a range of tasks plan to use apparatus effectively • To begin to make repeat observations and measurements systematically	***Words related to forces:*** Fall, gravity, force, air resistance, water resistance, friction, moving surfaces, magnetic force, magnet, attract and repel. ***Words related to mechanisms:*** Mechanisms, levers, pulleys, gears and cogs. **Tier 2:** Opposite, reaction, advantage, displace, weight and mass. **Tier 3:** Pulley, gear, pivot, fulcrum, level and upthrust.	  

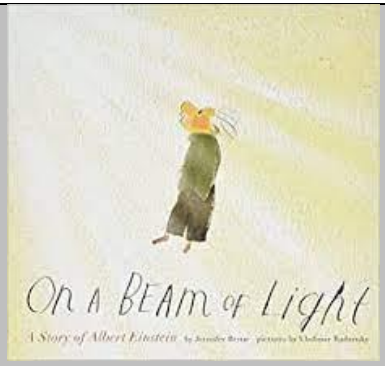
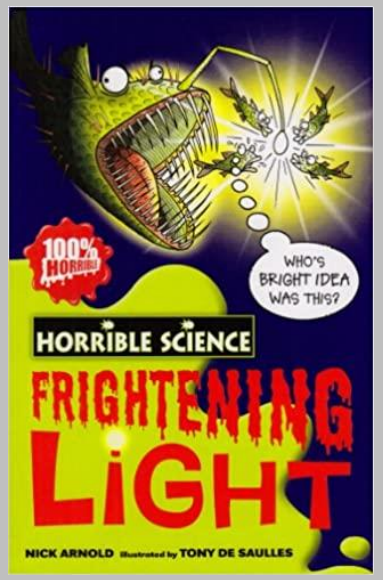
			• To make predictions based on their scientific knowledge and understanding • To draw conclusions that are consistent with the evidence relate evidence to scientific knowledge and understanding offer simple explanations for any differences in their results • To make practical suggestions about how their working methods could be improved • To identify and classify a variety of mechanisms based on their function.		 

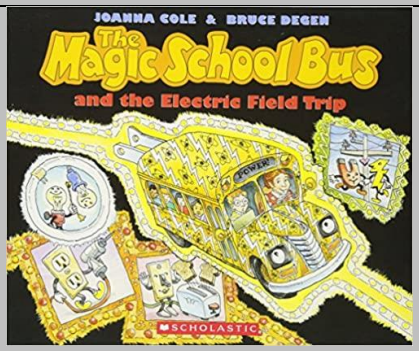
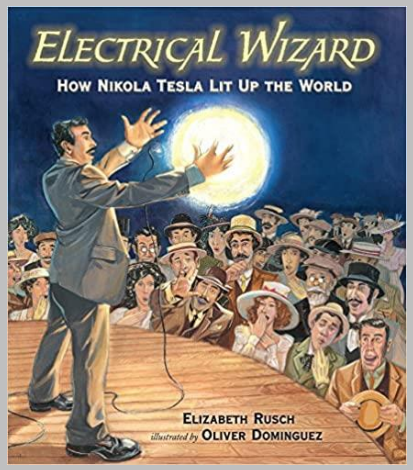
Year 6	Living things and their habitats	• To describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals • To give reasons for classifying plants and animals based on specific characteristics	• To identify and classify a variety of living things into their broad animal groups based on their observable characteristics. • To identify their common observable characteristics. • To use appropriate ways to communicate quantitative data using scientific language • To identify measurements and observations which do not fit into the main pattern • To begin to explain anomalous data • To describe evidence for a scientific idea • To explain conclusions, showing understanding of scientific ideas	***Words related to micro-organisms:*** Organism, micro-organism, fungus and mushrooms. ***Words related to the classification of animals:*** Classification keys, fish, amphibians, reptiles, birds, mammals, vertebrates and invertebrates. **Tier 2:** Characteristic, interdependence, specific, categorise, primitive and hierarchy. **Tier 3:** fungus, arthropod, taxonomy, kingdom, phylum and genus.	 

	Animals, including humans	• To identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood • To recognise the impact of diet, exercise, drugs and lifestyle on the way their body's function • To describe the ways in which nutrients and water are transported within animals, including humans	• To choose scales for graphs which show data and features effectively • To use appropriate ways to communicate quantitative data using scientific language • To identify measurements and observations which do not fit into the main pattern • To begin to explain anomalous data • To describe evidence for a scientific idea • To identify an approach for an investigation • To measure quantities with precision using fine – scale divisions select and use information effectively make enough measurements or observations for the required task • To make reasoned suggestions on how to improve working methods and show how interpretation of evidence leads to new ideas	***Words related to the circulatory system:*** Circulatory system, heart, blood, blood vessels, veins, arteries, capillaries, kidney, lungs, pumps, oxygen and carbon dioxide. ***Words related to a healthy lifestyle:*** Nutrients, water, diet, exercise, drugs and lifestyle. **Tier 2:** Filter, expel, substance, function, regulate and transform. **Tier 3:** Veins, arteries, capillaries, kidney, bladder, urine, excretion, toxin and nutrient.	

			• To explain conclusions, showing understanding of scientific ideas		
	Evolution and inheritance	• To recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago • To recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents • To identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution	• To choose scales for graphs which show data and features effectively • To use appropriate ways to communicate quantitative data using scientific language • To identify measurements and observations which do not fit into the main pattern • To begin to explain anomalous data • To describe evidence for a scientific idea • To identify an approach for an investigation • To measure quantities with precision using fine – scale divisions select and use information effectively make enough measurements or observations for the required task • To make reasoned suggestions on	***Words related to evolution:*** Evolution, suited and suitable, adapted and adaptation and fossils. ***Words related to inheritance:*** Offspring, characteristics, reproduce, reproduction, diverse, diversity, descendant, variation, and inheritance. **Tier 2:** Characteristic, adaptation, acquire, theory, modify and generation. **Tier 3:** Evolve, survival, species, clone, inherit and fossil.	 

			how to improve working methods and show how interpretation of evidence leads to new ideas • To explain conclusions, showing understanding of scientific ideas		  

	Light	• To recognise that light appears to travel in straight lines • 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 • 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 • To use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them	• To choose scales for graphs which show data and features effectively • To use appropriate ways to communicate quantitative data using scientific language • To identify measurements and observations which do not fit into the main pattern • To begin to explain anomalous data • To describe evidence for a scientific idea • To identify an approach for an investigation • To measure quantities with precision using fine – scale divisions select and use information effectively make enough measurements or observations for the required task • To make reasoned suggestions on how to improve working methods and show how interpretation of evidence leads to new ideas	***Words related to light:*** Light, travels, straight, reflect, reflection, light source, object, shadows, mirrors, periscope, rainbow, filters. **Tier 2:** Impurity, emit, absorb, constituent, filter and artificial. **Tier 3:** Refraction, incidence, spectrum, prism, lux and pigment.	 

			• To explain conclusions, showing understanding of scientific ideas		
	Electricity	• 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 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 use recognised symbols when representing a simple circuit in a diagram	• To choose scales for graphs which show data and features effectively • To use appropriate ways to communicate quantitative data using scientific language • To identify measurements and observations which do not fit into the main pattern • To begin to explain anomalous data • To describe evidence for a scientific idea • To identify an approach for an investigation • To measure quantities with precision using fine – scale divisions select and use information effectively make enough measurements or observations for the required task • To make reasoned suggestions on	***Words related to electricity:*** Appliances, electrical circuit, complete circuit, circuit diagram, circuit symbol, components, cell, battery, positive/negative, connection, loose connection, wire, crocodile clip, bulb, brightness, switch, buzzer, volume, motor, conductor, insulator, voltage, current, resistance, danger, series circuit. **Tier 2:** Component, consequence, positive/negative, volume, systematic, represent, source and generate. **Tier 3:** Atom, Proton, neutron, electron, terminal, series and voltage.	 

			how to improve working methods and show how interpretation of evidence leads to new ideas • To explain conclusions, showing understanding of scientific ideas		