Dunsford Community Academy

CURRICULUM OVERVIEW 2021-22

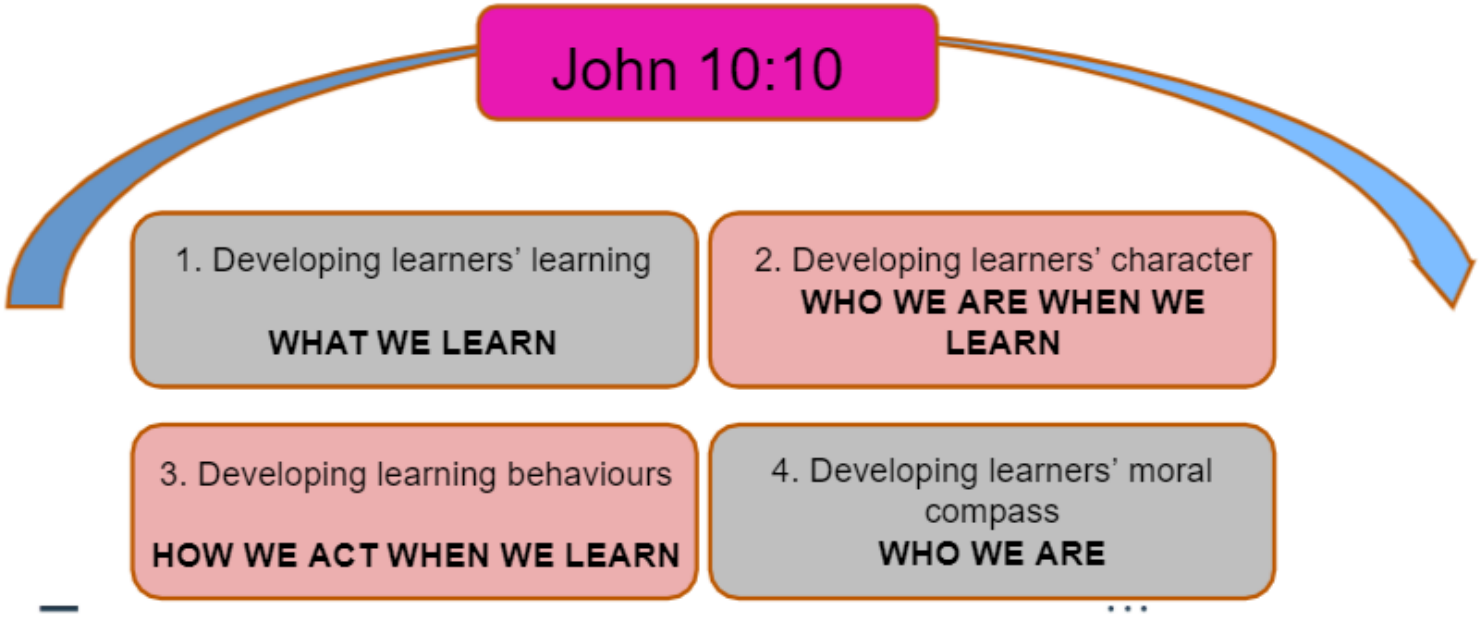
Science

Dunsford Community Academy's curriculum is intrinsically linked to our vision statement ***'Together we learn, Together we grow, Together we bloom.'*** Our curriculum is ambitious and we want our pupils to imagine what is possible for them to achieve and to develop confidence to fulfil their hopes and aspirations. Our ambition is to give the children the purpose and desire to create change in our local communities and the wider world beyond.

Our curriculum is the beating heart of our academies and is rooted in John 10:10.

"I came that they might have life and live it to the full"

Our children will flourish through experiencing a knowledge-rich curriculum which is both broad and balanced and fosters a love of learning, enabling all children to make connections and be well prepared for the next stage of their education.



Curriculum Intent

Developing learners' learning
WHAT WE LEARN

Our children will experience a knowledge-rich curriculum, underpinned by oracy, language and reading.

Developing learners' character
WHO WE ARE WHEN WE LEARN

Our children's uniqueness will be nurtured so that they develop self-discipline and integrity to make good choices.

Developing learning behaviours
HOW WE ACT WHEN WE LEARN

Our children will develop their learning behaviours and attributes so that they can embrace all opportunities and think critically.

Developing learners' moral compass
WHO WE ARE

Our children will develop a deep sense of self and others to contribute positively within the diverse community and world in which they live.

Science

As scientists, our children will experience a sense of awe and wonder of their environment and the natural and physical phenomena of the world they live in. They will understand how scientific advancements and the work of scientists continue to shape human achievement. They will learn scientific enquiry skills that will enable them to predict, investigate and evaluate evidence and draw conclusions. Pupils should be encouraged to

recognise the power of rational explanation that enables them to ask and answer questions.

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1/2 A	Animals including humans			Seasonal changes- Spring	Everyday materials	Uses of everyday materials
Year 1/2 B	Seasonal changes- Autumn		Seasonal changes - winter	Living things and their habitats	Plants	
Year 3/4 A	Animals including humans		Sound		Rocks	Light
Year 3/4 B	Forces and magnets	Electricity		Living things and their habitats	States of matter	Plants
Year 5/6 A	Animals including humans		Evolution and inheritance	Earth and space	States of matter	Light
Year 5/6 B	Forces and magnets	Electricity	Living things and their habitats		Materials	

	NC objectives	Key knowledge and skills	Working scientifically skills	Suggested vocab and linked texts	Broadening horizons
Year 1/2 A					
Aut 1&2	**Animals including humans (Yr 1)** **Part 1 animals:** -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 mammals including pets) **part 2: humans** - identify, name, draw and label the basic parts of the human body and say which	- I can name common animals. identify and classify, observe closely, ask simple questions, gather data e.g. bring your (toy) animal to school, add in additional ones to add variety. sort into hoops using sorting questions (can it fly, does it live in water ect). -e.g measuring yourself to an animal- big paper, mark a scale in 10cm steps. - gather data -I can name a variety of animals that are carnivores, herbivores and omnivores - e.g. ipads to research what they eat and sort into three sections. - venn diagram to present information. e.g. tiger who came to tea, choose an animal, what would they eat? -I can describe the structure of an animal- does it have wings etc, make your own classification key. e.g. make your own animal jigsaw. e.g. looking at animal x rays. Observing closely, using simple equipment. -I can name, draw, label basic body parts of a human. e.g. draw around a person on big paper and label.	• Asking simple questions and recognising that they can be answered in different ways. • Observing closely, using simple equipment. • Performing simple tests • Identifying and classifying. • Using their observations and ideas to suggest answers to questions. • Gathering and recording data to help in answering questions	fish, amphibians, reptiles, birds, mammals, carnivores, herbivores, omnivores, taste, hear, eyes, eyesight, hear, hearing. *Rumble in the jungle, Commotion in the Ocean, Cock-a- Doodle- do! What the ladybird heard by Julia Donaldson,* *Tiger who came to tea by Judith Kerr* new born, frog spawn, offspring, young, survival, exercise, hygiene, food, heart rate	visit to a farm visit a zoo really wild show in school visit from a local vet with x rays Sense walk

	part of the body is associated with each sense. **Animals including humans (Yr2)** Notice that animals, including humans, have offspring which grow into adults. Find out about and describe the basic needs of animals, including humans, for survival (water, food and air) Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.	e.g. body part collage from newspaper - identifying and classifying, leaflets, magazines I can identify and understand my senses- magnify glass, listening walk, smell walk, make perfume, taste foods blindfolded. I can notice that humans and animals have offspring e.g. new born baby visit. asking questions about growing up, or frog spawn. Asking questions, observing closely. -Observation over time- butterflies in school. or child growing (time lapse) what do you notice? I can research survival questions using the media: e.g. how many days does a fish survive without food? How do fish survive and breathe under water? -I can describe the importance for humans of exercise e.g. exercise and correlating heart rate on the playground- what happens? circuits each day, does their fitness improve? Performing simple tests -I can describe the importance of the right amounts of food - e.g keeping a food diary and collecting data on how much of each food group they have.		*Growing frogs, by Vivian French* *Perfectly Peculiar Pets by Elli Woollard*	Frog spawn tank/pond visit a farm with baby animals. washing hands- people in to see germs on your hands.

		-I can describe the right amounts of hygiene. e.g. washing hands bread and sealed bag experiment.			
Spr 2	**Seasonal changes** **Spring** - observe changes across the four seasons - observe and describe weather associated with the seasons and how day length varies.	- I can describe how the weather changes in each season. - I can describe how the changing seasons affect the environment around me (through observation/ Outdoor Learning) - I can observe closely using simple equipment e.g. Autumn walk with spotter sheets, egg box and fill with autumn items found on the walk, collect pine cones. - I can use my observations to suggest answers to questions e.g. what is the weather today? (observation over time) - I can gather data to help in answering questions e.g. what happens to daylight during the different seasons. - I can observe closely, using simple equipment , weather associated with winter e.g. predicting and measuring temperature- looking at thermometers in the classroom or outside area. Predict each day and keep track- freezing if colder than zero. e.g frozen figures in balloons or moulds - how to delay or speed up melting e.g. measuring rainfall in a bottle - I can gather data to help in answering questions I can observe closely, using simple equipment I can observe how day length varies- e.g. observe what time it gets dark, what time it gets light. The shortest day is 21st	• Asking simple questions and recognising that they can be answered in different ways. • Observing closely, using simple equipment. • Performing simple tests • Identifying and classifying. • Using their observations and ideas to suggest answers to questions. • Gathering and recording data to help in answering questions.	Spring, Summer, Autumn, Winter, change, weather, sunny, rain, hail, snow, sleet, thunder, cloudy, temperature, ice, melting, cold, freezing, warm, hot, celcius *Around the Year by Tasha Tudor (F)* *Tree by Britta Teckentrup (F)* *Seasons by Usborne Young Beginners (NF)* *Seasons by Valerie Bloom (P)* *Percy the park keeper by Nick Butterworth*	Visit to the Met Office in Exeter Seasonal Walk – same location throughout the year to observe changes Visit from a farmer

		Dec when the sun rises around 8am and sets around 4pm. - draw clocks to show these times (links with Maths) -			
Sum 1&2	**Everyday materials (Yr 1)** - distinguish between an object and the material from which it is made - identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock -describe the simple physical properties of a variety of everyday materials -compare and group together a variety of everyday materials on the basis of their simple physical properties **Uses of Everyday materials: (Yr2)** -Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic,	- I can distinguish between an object and the material from which it is made from. -I can name everyday materials - identifying and classifying e.g. sort the junk modelling and objects in the class (lego, k'nex, bouncy ball ect) label the objects. -asking simple questions e.g. what's in the box- describe the object/ material - can it break? e.g. make your own feely board and label. -compare and group materials based on simple criteria I can describe the physical properties of materials-performing simple tests. e.g. waterproof, not waterproof- make a teddy a coat. -stretchy/not stretchy - how far can you stretch a material. - I can sort objects into materials including unusual materials. using observations and ideas to gather ideas to suggest answers to questions. e.g. can you describe them? Why is there nothing made from_____ where could we find this material? e.g. why can't a football be made of glass?	• Asking simple questions and recognising that they can be answered in different ways. • Observing closely, using simple equipment. • Performing simple tests • Identifying and classifying. • Using their observations and ideas to suggest answers to questions. • Gathering and recording data to help in answering questions	transparent, opaque, hard, smooth, fluffy, stringy, rough, bumpy, soft, see through, waterproof, fury *The Three Little Wolves And The Big Bad Pig Eugene Trivizas & Helen Oxenbury* *Let's Build A House Mick Manning and Brita Granström* *Captain Buster* wood, metal, plastic, glass, brick, rock, paper, cardboard, solid, surface, rough,	recycling centre visit sorting the recycling box interview with caretaker visit a factory? Toy shop visit? Whizz Pop Bang science, visit a recycling

	glass, brick, rock, paper and cardboard for different uses - compare how things move on different surfaces. -find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching	-I can compare how things move on different surfaces. e.g. does the car move differently on different surfaces and materials? Simple test -I can find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching e.g. can materials be used for something else? e.g. can a stone be squashed, why not?		tough, squashing, bending, twisting, stretching, *New From Old: Recycling Plastic' by Anthony Robinson 'The Three Little Pigs' by Heather Amery and Stephen Cartwright 'The Great Paper Caper' by Oliver Jeffers* *A planet full of plastic, Neal Layton*	centre or they come in. caretaker visit
Year 1/2 B					
Aut 1 **Spr 1**	**Seasonal changes** **Autumn** **Winter** - observe changes across the four seasons - observe and describe weather associated with the seasons and how day length varies.	- I can describe how the weather changes in each season. - I can describe how the changing seasons affect the environment around me (through observation/ Outdoor Learning) - I can observe closely using simple equipment e.g. Autumn walk with spotter sheets, egg box and fill with autumn items found on the walk, collect pine cones. - I can use my observations to suggest answers to questions e.g. what is the weather today? (observation over time)	• Asking simple questions and recognising that they can be answered in different ways. • Observing closely, using simple equipment. • Performing simple tests • Identifying and classifying. • Using their observations and ideas to suggest answers to questions. • Gathering and recording data to help in answering questions.	Spring, Summer, Autumn, Winter, change, weather, sunny, rain, hail, snow, sleet, thunder, cloudy, temperature, ice, melting, cold, freezing, warm, hot, celcius *Around the Year*	Visit to the Met Office in Exeter Seasonal Walk – same location throughout the year to observe changes

		- I can gather data to help in answering questions e.g. what happens to daylight during the different seasons. - I can observe closely, using simple equipment , weather associated with winter e.g. predicting and measuring temperature- looking at thermometers in the classroom or outside area. Predict each day and keep track- freezing if colder than zero. e.g frozen figures in balloons or moulds - how to delay or speed up melting e.g. measuring rainfall in a bottle - I can gather data to help in answering questions I can observe closely, using simple equipment I can observe how day length varies- e.g. observe what time it gets dark, what time it gets light. The shortest day is 21st Dec when the sun rises around 8am and sets around 4pm. - draw clocks to show these times (links with Maths) -		*by Tasha Tudor (F)* *Tree by Britta Teckentrup (F)* *Seasons by Usborne Young Beginners (NF)* *Seasons by Valerie Bloom (P)* *Percy the park keeper by Nick Butterworth*	Visit by a farmer
Spr 2	**Living things and their habitats** -Explore and compare the differences between things that are living, dead, and things that have never been alive -Identify that most living things live in	-I can explore and compare living and dead and never been alive. e.g. compare a doll to a child in the class, what can they do, what can't they do? compare an animal to a plant- venn diagram, what do they both do? (breathe). -I can identify that most living things live in habitats to which they are suited.	• Asking simple questions and recognising that they can be answered in different ways. • Observing closely, using simple equipment. • Performing simple tests • Identifying and classifying. • Using their observations and ideas to suggest answers to questions.	basic needs, hierarchy of needs, habitats, microhabitats, food chain, breathe, classification, observe, predator, prey, producer	Local vet to come in local farmer to come in visit the a local forest/ river/ stream/ marshes/ beach

	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 -Identify and name a variety of plants and animals in their habitats, including microhabitats -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	e.g. I can say why animals are suited in which habitat. I can use a classification key to show where an animal is suited to live. I can describe the basic needs of animals and plants. I can use a food chain to show where the animal's food comes from. identifying and classifying using their observations and ideas to suggest answers to questions.	• Gathering and recording data to help	*Dougal's Deep-Sea Diary* *Simon Bartram* *The Storm Whale* *Benji Davies*	
Sum 1	**Plants** (Yr 1) - 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	-I can name common plants - home learning/ visit garden to see different plants. e.g. variety of plants brought in so they can touch. Gathering and recording data to help in answering questions -e.g explore myths relating to plants- are snow drops really made of snow? -visit a local allotment to see fruit and vegetables being grown. e.g. pictograms of favourite fruit and vegetables.	• Asking simple questions and recognising that they can be answered in different ways. • Observing closely, using simple equipment. • Performing simple tests • Identifying and classifying. • Using their observations and ideas to suggest answers to questions. • Gathering and recording data to help in answering questions	shoot, fruit, earth, soil, seeds, animal, reproduce, deciduous, evergreen, flower, plant, vegetables, roots, stem, leaves, flower, pollen *Jim and the Beanstalk*	park visit ranger visit visit a garden centre rotary club/ volunteer to plant in school

		I can describe the basic structure of a plant/ tree e.g take a plant apart using magnifying glass, what do you see? using simple equipment, observing closely. -I can describe basic structure of fruits/vegetables/flowers e.g. classification key based on fruit and vegetables. e.g. spinach has leaves, carrots have roots. Identifying and classifying.		*Raymond Briggs* *Ten Seeds* *Ruth Brown* *Oliver's Vegetables* *Vivian French and Alison Bartlett* *Eddie's Garden: and How to Make Things Grow* *Sarah Garland*	
	Plants (Yr 2) -observe and describe how seeds and bulbs grow into mature plants - find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.	-I can observe overtime what happens to a bulb. e.g keep a diary with photos, cut a bulb in half and have a look at what is inside. I can observe what happens to the parts of the plant when something is changed (e.g. colourful water up the stem) I can grow plants in different conditions and observe and describe what has happened.		bulb, seeds, planting, soil, healthy, temperature, growth *Eddie's Garden: and How to Make Things Grow* *Sarah Garland*	local allotment visit, gardner to come in secondary school biology teacher in

Year 3/4 A					
	NC objectives	**Key knowledge and skills**	**Working scientifically skill:**	**Suggested vocab and linked texts**	**Broadening horizons**
Aut 1 & 2	**Animals including humans. (Yr 3)** -Identify 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 -Identify that humans and some other animals have skeletons and muscles for support, protection and movement.	I can use food labels to gather and answer questions. e.g comparing red, yellow, green labels and what it means. presenting data, gathering data to answer questions. I can classify and rank the foods (labels) according to nutritional value. e.g. I will be able to conclude the patterns I notice. (bar graph to present information) e.g. coco pops have 5g more sugar than cornflakes. bar charts and tables to present my findings. I can use nutrition apps anc calculators to see what I eat. I can present my findings. I can use an x-ray app to see the bones in my body. - labelled diagram. I can use everyday objects to represent parts of the brain and body. presenting data in a variety of different ways. I can create accurate diagrams to represent my muscles. labelled diagram	• Asking relevant questions and using different types of scientific enquiries to answer them • Setting up simple practical enquiries, comparative and fair tests • Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. • Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions • Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions	nutrients, nutrition, fats, protein, carbohydrates, sugar, fish, eggs, meat, vegetables, fruits, fibre *Wolves by Emily Gravett*	**Vet visit** **Really Wild show visit**

	Animals including humans (Yr4) Describe the simple functions of the basic parts of the digestive system in humans Identify the different types of teeth in humans and their simple functions Construct and interpret a variety of food chains, identifying producers, predators and prey.	I can explain the basic parts of the digestive system in humans using research I have carried out. e.g recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables - swallow and trace down the throat where they think the stomach is. e.g. use scaled string to represent the digestive system. https://35058.stem.org.uk/humanbody/index.html - resource to show inside the human body. I can research and gather information about teeth. e.g. implications of sugar on teeth experiment (coke and teeth) e.g reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions I can create a model of my teeth and explain the parts in a labelled diagram Labelled diagram e.g research and gather information about inside the human body https://35058.stem.org.uk/humanbody/index.html - resource for xray, inside the human body	• Identifying differences, similarities or changes related to simple scientific ideas and processes • Using straightforward scientific evidence to answer questions or to support their findings	digestive system, mouth, tongue, teeth, oesophagus, stomach, gallbladder, small intestine, pancreas, anus, rectum, large intestine, liver, duodenum, tooth, canine, incisor, molar, premolars, producer, consumer. Charlotte's Web by E.B White	**Nurse visit** **dentist visit**

		- e.g. teeth in different animals- sort into classification key or different groups. I can create a food chain and incorporate producer, predator and prey. e.g. human classification- sorting themselves into different groups based on characteristics. e.g guess who (Recognise that livings things can be grouped in a variety of ways)			
Spr 1 & 2	**Sound** identify how sounds are made, associating some of them with something vibrating recognise that vibrations from sounds travel through a medium to the ear find patterns between the pitch of a sound and features of the object that produced it find patterns between the volume of a sound and the strength of the vibrations that produced it.	e.g making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers e.g identifying differences, similarities or changes related to simple scientific ideas and processes I can identify how sounds are made. I can explain how vibrations from sounds travel through a medium to the ear. e.g. hold fingers over the throat when talking or humming and feel vocal cords vibrate as they make a sound. - Does it change depending on the pitch? e.g. tuning fork on solids and touch a ping pong ball hanging from string. How does the ball move? e.g. tuning fork in water, water happens? e.g. rice and drums. observe what happens to rice on a drum when beaten. How else can the rice move without actually touching it or the drum?	• Asking relevant questions and using different types of scientific enquiries to answer them • Setting up simple practical enquiries, comparative and fair tests • Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. • Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions • Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • Reporting on findings from enquiries, including oral and written explanations, displays or	vibration, sound, particles, wave length, vibrate, air, medium, ear, hear, volume, pitch, faint, fainter, loud, louder, string, percussion, woodwind, brass, insulate *Horrid Henry Rocks by Francesca Simon*	**music making instrument making** **Trip to local secondary school music department**

	recognise that sounds get fainter as the distance from the sound source increases	- annotate findings (reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions) I can explain that if there is no air for vibrations to travel through, we would not hear the sounds. I can experiment with pitch and objects. e.g. scratching the table, what happens to the sound as your ear gets closer and you scratch under the table. I can recognise that sounds get fainter as the distance from the sound source increases. e.g. string telephones e.g. make your own hydrophone I can find patterns between the pitch of a sound and features of the object that produced it. e.g animal and the pitch of the sounds they produce. Does the size of the animal make a difference to the pitch? e.g. different size instruments. predict the pitch of the sound they will produce. e.g. make your own instruments, what makes the best instrument?	presentations of results and conclusions ● Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions ● Identifying differences, similarities or changes related to simple scientific ideas and processes ● Using straightforward scientific evidence to answer questions or to support their findings		

		I can find patterns between the volume of a sound and the strength of the vibrations that produced it. e.g. measuring sound using data loggers - look at the average			
Sum 1	**Rocks** compare and group together different kinds of rocks on the basis of their appearance and simple physical properties describe in simple terms how fossils are formed when things that have lived are trapped within rock recognise that soils are made from rocks and organic matter.	I can name different rocks. Using straightforward scientific evidence to answer questions or to support their findings I can use their properties and appearance to classify rocks.e.g. grainy, speckled ect. I can explain which rocks would be most suited for particular buildings. Using research I have found, I can explain how fossils have been formed. e.g I can explain this through a labelled diagram I can create a model of a fossil to explain how a fossil is formed. e.g. imprinting, flour and dough. I can observe samples of soil and discover what it is made up of. e.g. add water to it, what happens?	• Asking relevant questions and using different types of scientific enquiries to answer them • Setting up simple practical enquiries, comparative and fair tests • Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. • Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions • Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions	appearance, physical, properties, hard, soft, shiny, dull, rough, smooth, absorbent, non absorbent, fossils, sedimentary, rock, soils, organic matter, buildings, gravestones, erosion, grain, crystals *The Pebble in my Pocket by Meredith Hooper*	visit Lyme Regis Fossil beaches visit from a local archaeologist

			• Identifying differences, similarities or changes related to simple scientific ideas and processes • Using straightforward scientific evidence to answer questions or to support their findings		

Sum 2	**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 a solid object find patterns in the way that the size of shadows change	I can describe what I see in total darkness e.g. use different objects I can classify objects into non-light sources and light sources. I can notice that light is reflected from surfaces. e.g. use different surfaces and a torch as a light source. I can create an experiment to test the sun's strength e.g UV beads- observation over time. I can test what will help protect the UV beads. setting up practical enquiries. I can use a data logger with a light sensor to measure light shining through a material/ object. Using data logger to gather data. I can experiment with shadows and why we get shadows. I can find patterns that determine the size of the shadow e.g. foot prints and size.	• Asking relevant questions and using different types of scientific enquiries to answer them • Setting up simple practical enquiries, comparative and fair tests • Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. • Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions • Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • Identifying differences, similarities or changes related to simple scientific ideas and processes • Using straightforward scientific evidence to answer questions or to support their findings	moon, shadow, light, dark, reflect, UV, dangerous, absence of light, see, surface, natural, star, sun, blocked solid, artificial, torch, candle, lamp, protect eyes, light source, source, shine *The Firework-Maker's Daughter by Philip Pullman*	**visit a cave have a tent in the classroom to create total darkness**

Year 3/4 B					

Aut 1	**Forces and magnets** Compare how things move on different surfaces Notice that some forces need contact between 2 objects, but magnetic forces can act at a distance Observe how magnets attract or repel each other and attract some materials and not others Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials Describe magnets as having 2 poles Predict whether 2 magnets will attract or repel each other, depending on which poles are facing.	Can adding material improve performance of a car? Which material is best and why? I can compare how toys can move along different materials. (using pushing, rolling and adding ramps) Setting up comparative and fair tests. making systematic and careful observations I can observe what happens to magnets. eg. if a magnetic material was attached which would be best? Making systematic and careful observations and, where appropriate, taking accurate measurements I can find out that only a few metals are magnetic. I can create my own test to find this out. I can find out... Can you move an object without actual contact between fabric and magnetic material. Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables	• Asking relevant questions and using different types of scientific enquiries to answer them • Setting up simple practical enquiries, comparative and fair tests • Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. • Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions • Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • Identifying differences, similarities or changes related to simple scientific ideas and processes • Using straightforward scientific evidence to answer questions or to support their findings	magnetic, repel, attract, north, south, opposites, compare, pushing, rolling, comparative, contact, fabric, rough, smooth, shiny, metal, material *The Iron Man by Ted Huges*	robot wars - creating robots trip to a physics lab in the local secondary school

Aut 2 & Spr 1	**Electricity** identify common appliances that run on electricity construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers 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 recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit Sc4/4.2e recognise some common conductors and insulators, and associate metals with	I can identify common appliances that run on electricity. e.g. mime an electrical appliance- discuss batteries and mains- how are they both electricity? talk about criteria for grouping, sorting and classifying. e.g. sort and classify pictures of appliances from a catalogue. where might they find these in a house? I can construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. e.g. introduce components using sweets (red laces, jelly worms and liquorice all sorts. Which parts of a circuit could they represent? build a sweet circuit. - photo and compare. e.g create your own circuit using cells, wires, bulbs, switches and buzzers. e.g. can you make a circuit to light a bulb? Can you make a circuit to buzzer a buzzer? Can you make a circuit to spin a motor? I can 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. I can recognise that a switch opens and closes a circuit and associate this with	• Asking relevant questions and using different types of scientific enquiries to answer them • Setting up simple practical enquiries, comparative and fair tests • Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. • Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions • Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • Identifying differences, similarities or changes related to simple scientific ideas and processes	appliances, electricity, electrical circuit, cell, wire, bulb, buzzer, danger, electrical safety, sign, insulator, wood, plastic, conductors, metal, water, switch, open, closed, *Goodnight Mr Tom by the English author Michelle Magorian*	Bright sparks workshop trip to local secondary school for science BT in to talk about their experience of electricity.

	being good conductors.	whether or not a lamp lights in a simple series circuit. e.g. can you light a bulb in a circuit without using a bulb holder? What happens if you swap the wires over when connecting a buzzer in a circuit? can you make a motor spin both clockwise and anticlockwise? I can recognise some common conductors and insulators, and associate metals with being good conductors. e.g. creating circuits and test materials, can the circuit still work even though the material is part of it? setting up simple practical enquiries, comparative and fair tests. making systematic and careful observations. using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.	• Using straightforward scientific evidence to answer questions or to support their findings		
Spr 2	**Living things and their habitats** Recognise that living things can be grouped in a variety of ways Explore and use classification keys to help group, identify and name a variety of living things in their	I can identify and classify living things in a variety of ways. e.g. labelled classification keys I can investigate why environments change and how it affects living things. e.g. research based on case studies e.g pooters, umbrellas, pitfall traps and tullgren tunnels, bug hunt in school grounds or out, look for bugs in a shed. e.g making systematic and careful observations and, where appropriate,	• Asking relevant questions and using different types of scientific enquiries to answer them • Setting up simple practical enquiries, comparative and fair tests • Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.	classification, living, environment, coastal, climate, organism, variation, classification, vertebrates, invertebrates, reptiles, bird, mammal, amphibian, fish, global, local,	visit from met office about dangers to environment tweeting environment alists (Ben Fogle)

	local and wider environment Recognise that environments can change and that this can sometimes pose dangers to living things.	taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. I can create and use classification keys. e.g create classification keys for living things (e.g. land, sea, feathers, fur) I can group living things. e.g. I can create my own keys to identify the tree from which the leaf has fallen. I can recognise that environments can change and that this can sometimes pose dangers to living things. e.g using straightforward scientific evidence to answer questions or to support their findings. - use WWF website to research endangered animals and where in the world. - research importance of bees as pollinators and research threats. (look at Fera as an organisation.)	• Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions • Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • Identifying differences, similarities or changes related to simple scientific ideas and processes • Using straightforward scientific evidence to answer questions or to support their findings	characteristic, key, habitat, wildlife, endangered, extinct, conversation *The Vanishing Rainforest by Richard Platt*	
Sum 1	**States of Matter** Compare and group materials together, according to whether they are solids, liquids or gases Observe that some materials change state when they are heated	I can identify solids, liquids and gases. e.g. three identical balloons filled with ice, water and air is a great way of observing water as a solid, liquid and gas. This would lead into a discussion about the properties of each state. e.g grouping materials into solids, liquids and gases- e.g. toothpaste, jelly and foam. (thinking about the properties of materials.)	• Asking relevant questions and using different types of scientific enquiries to answer them • Setting up simple practical enquiries, comparative and fair tests • Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment,	solid, solidify, iron, ice, melt, freeze, liquid, evaporate, condense, gas, container, changing state, heated, heat, cooled, cool, degrees celsius, thermometer,	perfume making reactions whizz pop, bang local secondary chemistry workshop

	or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.	gathering, recording, classifying and presenting data in a variety of ways to help in answering questions I can observe over time what happens when something is heated. e.g. At what temperature does chocolate melt? e.g. chocolate experiment, chd choose which chocolate they want and how to heat. making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers I can observe over time what happens when something is cooled. I can take accurate readings. e.g. making observations of the different frozen liquids and predict what liquids they once were. I can explain evaporation, condensation and the water cycle. e.g. vinegar and lemon juice, liquid evaporating and travels around the room. Though invisible it can be smelt (evaporation has taken place.)	including thermometers and data loggers. • Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions • Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • Identifying differences, similarities or changes related to simple scientific ideas and processes • Using straightforward scientific evidence to answer questions or to support their findings	water cycle, evaporation, condensation, temperature, melting, warm/cool, water, water vapour *Itch by Simon Mayo*	

Sum 2	**Plants** identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant Investigate the way in which water is transported within plants Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.	I can create an experiment to find out what a plant really needs to grow. (plants in different conditions) I can see if plants will grow far apart or close together. I can report my findings I can ask relevant questions I can set up practical enquiries I can investigate the way in which water is transported within the plants. e.g. take the leaves off, what will happen? e.g. what happens when a plant has had its roots removed and placed back into the soil? I can investigate the female part of the plant, the stigma and its use. I can explore the life cycle of the plant in terms of pollination.	• Asking relevant questions and using different types of scientific enquiries to answer them • Setting up simple practical enquiries, comparative and fair tests • Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. • Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions • Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • Identifying differences, similarities or changes related to simple scientific ideas and processes • Using straightforward scientific evidence to answer questions or to support their findings	structure, flowering plants, roots, stem/trunk, leaves, flowers, function, nutrition, support, reproduction, makes its own food, life and growth, air, light, water, nutrients, fertiliser, pollination, seed dispersal *The story of Frog Belly Rat Bone by Timothy Basil Er ing*	**gardener in to talk** **Killerton house garden trip** **garden centre**

Year 5/6 A					
	NC objectives	**Key knowledge and skills**	**Working Scientifically skills**	**Suggested vocab and linked texts**	**Broadening horizons**
Aut 1&2	**Animals including humans (Yr5)** describe the changes as humans develop to old age. **Animals including humans (Yr6)** identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood recognise the impact of diet, exercise, drugs	I can describe the changes as a human develops to old age. e.g. invite an older person in to talk about their experience e.g. invite a pregnant person in to talk about how they have developed. e.g. experiment with aging apps or time lapse and explain what is happening e.g. compare photographs. e.g explore animal gestation periods. Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and presentations. identifying scientific evidence that has been used to support or refute ideas or arguments. I can identify and name the main parts of the human circulatory system. e.g. what's the link- bike pump, athlete, upside down pear, cupid, stethoscope, vampire, hospital blood bank, industrial valve, delivery man- How do they link? The circulatory system is the body's delivery system and there are important jobs in our body. e.g. hearts work like a pump, create a model	• Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • Taking measurements, using a range of scientific equipment, with increasing accuracy and precision • Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and bar and line graphs • Using test results to make predictions to set up further comparative and fair tests • Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other presentations • Identifying scientific evidence that has been used to support or refute ideas or arguments	human, development, baby, toddler, child, teenager, adult, puberty, gestation, length, mass, grows, grow, growing *Atlas of Ocean adventures by Emily Hawkins* *Beetle Boy by MG Leonard* circulatory system heart blood blood vessels pumps oxygen carbon dioxide lungs nutrients water diet exercise drugs lifestyle	Old person in to speak, pregnant person in to talk vet visit **paignton zoo workshop** **doctor in to talk**

	and lifestyle on the way their bodies function describe the ways in which nutrients and water are transported within animals, including humans.	I can describe the functions of the heart. https://35058.stem.org.uk/humanbody/index.html- heart function in action. e.g what happens to our heart when we exercise? I can describe the functions of the blood vessels e.g. create a diagram to explain blood vessels and labels. e.g explain the 3 different components of blood I can describe the functions of the blood e.g. what happens to red blood cells, white blood cells, platelets and plasma. I can recognise the impact of diet on the body e.g. calculating how much of each food group they have and drawing conclusions from what they have found. e.g weigh sugar in foods they have and discuss. I can recognise the impact of exercise on the body e.g. calculate the number of steps per week, compare it to recommendation from government statistics. I can recognise the impact of drugs on the body. e.g. impact of smoking model. I can recognise the impact of lifestyle on the body.		*Tracy Beaker – Jacqueline Wilson* *Hetty Feather - Jacqueline Wilson* *Mummy Laid an Egg – Babette Cole* *Hair in Funny Places – Babette Cole*	

		e.g. what affects your heart rate? I can describe the ways in which nutrients are transported within animals. e.g. make a model of blood to describe the way nutrients are transported. I can describe the ways in which water is transported within animals. e.g making models to represent the water being transported. What happens if something stops the water being transported?			
Spr 1	**Evolution and inheritance** recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents identify how animals and plants are adapted to suit their environment in	I can recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago e.g invesigating snails- they have been adapting to their environment. This may be as a result of climate change and changes in other animals and plants around them.- own snail hunt and record their findings. **Charles Darwin.** e.g fossil detectives- real fossils, which animals do they belong to? e.g. investigating case studies into recent fossil findings. (Alaska in 2015 and Scotland in 2015) I can recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.	• Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • Taking measurements, using a range of scientific equipment, with increasing accuracy and precision • Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and bar and line graphs • Using test results to make predictions to set up further comparative and fair tests • Using simple models to describe scientific ideas • Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of results, in oral	evolution suited/ suitable adapted/ adaptation offspring characteristics vary/ variation inherit/ inheritance fossils Ravenwood – Andrew Peter, The Arrival - Shaun Tan, Our Family Tree – Lisa Westberg Peters,Dogs – Emily Gravett,What Mr Darwin Saw – Mick Manning & Brita	**Lyme Regis trip?**

	different ways and that adaptation may lead to evolution.	e.g. similarities and differences between siblings case study. siblings of celebrities- similarities and differences. Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations. Identifying scientific evidence that has been used to support or refute ideas of arguments. I can identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution e.g. research Charles Darwin's work on evolution including his work looking at variation in the Galapagos finches and how they have gradually adapted to suit the Island on which they live. e.g design their own species adapted to a particular habitat. e.g. how do animals and plants adapt in the rainforest?	and written forms such as displays and other presentations ● Identifying scientific evidence that has been used to support or refute ideas or arguments.	Granstrom,Dear Olly - Michael Morpurgo, Amazing Animal Journeys - Chris Packham	
Spr 2	**Earth and space** describe the movement of the Earth, and other planets, relative to the Sun in the solar system	I can describe the movement of the Earth. e.g. use objects to create your own representation of the movement of the Earth. I can describe the movements of other planets relative to the Sun in the solar system.	● Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary ● Taking measurements, using a range of scientific equipment, with increasing accuracy and precision	Earth planets Sun solar system Moon celestial body sphere/ spherical rotate/ rotation spin night and day Mercury Venus	**significant people Mae Carol Jemison**

	describe the movement of the Moon relative to the Earth describe the Sun, Earth and Moon as approximately spherical bodies use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.	e.g. use objects and a torch to create the representation of the solar system. e.g. use pupils outside to create the solar system. I can describe the movement of the moon relative to the Earth. e.g Observation over time, what happens to the moon during a month? e.g Is the moon only seen at night? I can describe the Sun, Earth and Moon as approximately spherical bodies. e.g How can we prove the Earth is round? I can use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky. e.g. what causes the Earth to have day and night? e.g. what happens to sunsets over the year? e.g. a week of a diary to record the sunset time. - compare and contrast.	• Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and bar and line graphs • Using test results to make predictions to set up further comparative and fair tests • Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other presentations • Identifying scientific evidence that has been used to support or refute ideas or arguments	Mars Jupiter Saturn Uranus Neptune Pluto 'dwarf' planet orbit revolve geocentric model heliocentric model shadow clocks sundials astronomical clocks *George's secret key to the universe by Lucy Hawking*	
Sum 1	**States of matter** demonstrate that dissolving, mixing and changes of state are reversible changes - explain that some changes result in the formation of new	I can explain the changes of state and reversible changes. e.g. crispy cake making to explore changing state. e.g. compare the properties of different materials, separating mixtures of materials based on their properties, irreversible and	• Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • Taking measurements, using a range of scientific equipment, with increasing accuracy and precision	solid, matter, states of matter, plasma, gas, liquid, temperature, heat, energy, condensation, melting, freezing, chemical symbol,	**Chemistry teacher from secondary school? perfume making body shop people in?**

	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.	reversible changes and melting and freezing of different materials. I can explain that some changes are reversible and irreversible. e.g. mimic volcanic eruptions using the action of bicarbonate of soda and acid. what is happening? changing variables. Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other presentations e.g. what happens to candles when they burn? What happens when they stop burning? e.g. what happens when vinegar is mixed with milk and watch the milk separate into a solid and a liquid known as curds and whey?	• Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and bar and line graphs • Using test results to make predictions to set up further comparative and fair tests • Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other presentations • Identifying scientific evidence that has been used to support or refute ideas or arguments	kinetic energy, vapourisation, physical change, chemical change, sublimation, melting point, chemical property, element, boiling point, physical properties, atom, mass, mixture, nucleus, property, molecule, solution, volume, freezing point and vapour.. *Itch by Steven Mayo*	
Sum 2	**Light** recognise that light appears to travel in straight lines 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	I can recognise that light appears to travel in straight lines. e.g. how does the light from the torch travel through holes punched into cardboard. What happens if it isn't in a straight line? What is best for light to travel? e.g. build your own model of how light travels. I can 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.	• Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • Taking measurements, using a range of scientific equipment, with increasing accuracy and precision • Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and bar and line graphs	light travels straight reflect reflection light source object shadows mirrors periscope rainbow filters *Keesha's Bright Idea – Eleanor May*	

	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 use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them	e.g. create a light maze. I can 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. e.g. how do we see something- represent this in a model using string to represent a light. What happens if the string (light) is not tight? I can use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. e.g Can you alter the shape of a shadow without altering the object? why? can you change one factor and see what happens to the resulting shadows, e.g. the distance of the object from light source, distance of object from screen, and the angle at which the light source shines on the object.	• Using test results to make predictions to set up further comparative and fair tests • Using simple models to describe scientific ideas • Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other presentations • Identifying scientific evidence that has been used to support or refute ideas or arguments.	*Can't You Sleep, Little Bear? - Martin Waddell* *The Owl Who Was Afraid of the Dark - Gill Tomlinson* *Night Monkey, Day Monkey by Julia Donaldson* *The Dark by Lemony Snicket*	
Year 5/6 B					
Aut 1	**Forces and magnets** explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object	I can explain that unsupported objects fall towards that Earth because of gravity acting between the earth and the falling object. e.g. what do you notice about how paint drips down paper when holding it up? Why does this happen? planning different types of scientific enquiries to answer questions,	• Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • Taking measurements, using a range of scientific equipment, with increasing accuracy and precision • Recording data and results of increasing complexity using	gravity, air resistance, water resistance, friction, surface, force, effect, move, accelerate, decelerate, stop, change direction, brake,	**swimming session - water resistance**

	• identify the effects of air resistance, water resistance and friction, that act between moving surfaces • recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.	including recognising and controlling variables where necessary. e.g. lean over to look at the floor, why does your hair move? e.g. can you stay in the air when jumping, how long can you stay in the air? What is happening? e.g can you throw a ball up in the air for more than 10 seconds? I can identify the effects of air resistance, water resistance and friction, that act between moving surfaces. e.g create your own balloon buggy- what makes the best? e.g what happens to playdough when it is in different shapes in water? I can explore levers, pulleys and gears and allow a smaller force to have a greater effect. e.g create your own pulley system, what do you need? What affects it? e.g. where is the best place to position the fulcrum to ensure that the heavy load can be lifted easily?	scientific diagrams and labels, classification keys, tables, and bar and line graphs • Using test results to make predictions to set up further comparative and fair tests • Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other presentations • Identifying scientific evidence that has been used to support or refute ideas or arguments	mechanism, pulley, gear, spring, theory of gravitation, Galileo Galileis, Isaac Newton *Leonardo's Dream by Hans de Beer* *The Tin Snail by Cameron McAllister*	
Aut 2	**Electricity** associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit	I can associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. e.g. what happens to the brightness if we change the thickness of the wire? e.g building the circuits from the simulation, observing the effects and giving reasons why.	• Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • Taking measurements, using a range of scientific equipment, with increasing accuracy and precision	appliances electrical circuit complete circuit circuit diagram circuit symbol components cell battery positive/ negative	

	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 use recognised symbols when representing a simple circuit in a diagram.	I can describe the different components in my circuit and what is happening to the bulbs, buzzers and switches. e.g. build the circuit and explain the components. e.g what happens if a part is altered, eg voltage? e.g. design an experiment to test the power of the circuit. I can use recognised symbols when representing a simple circuit in a diagram. e.g. match up symbols to description of the component, and discuss the function. e.g. create a classification key for the functions of the circuits. Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.	• Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and bar and line graphs • Using test results to make predictions to set up further comparative and fair tests • Using simple models to describe scientific ideas • Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other presentations • Identifying scientific evidence that has been used to support or refute ideas or arguments.	terminal connection loose connection short circuit wire crocodile clip bulb brightness switch buzzer volume motor conductor insulator voltage current resistance danger series circuit plan variables measurements accuracy precision repeat repeats record data scientific diagrams labels classification keys tables scatter graphs bar graph line graph predictions further comparative and fair tests report and present conclusions casual relationships explanations	

				degree of trust oral and written display presentation evidence support refute ideas arguments identify, classify and describe patterns systematic quantitative measurements Blackout- John Rocco Hitler's Canary – Sandi Toksvig	
Spr 1 & 2	**Living things and their habitats** (Yr 5) Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird Describe the life process of reproduction in some plants and animals	I can describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. e.g physical sorting- each child represents an animal, sort into different groups. - yes/ no questions to identify them. create different statements to identify them using scientific vocabulary. create statements about what it means to be in that group. I can describe the life process of reproduction in some plants and animals e.g life cycle of a green turtle e.g visit from reptile/ amphibian shop keeper?	• Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • Taking measurements, using a range of scientific equipment, with increasing accuracy and precision • Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and bar and line graphs • Using test results to make predictions to set up further comparative and fair tests	Mammal, amphibian, insect, bird, plants, animals, vegetable garden, flower border, David Attenborough, plants: sexual, asexual, animals:sexual, rainforest, oceans, desert, prehistoric, similarities, differences.	Tweets to David Attenborough episodes of his work Jane Goodall- important person

	Living things and their habitats (Yr 6) describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including	e.g. research using Ipads into life cycle of different animals and compare them reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as display and other presentations. e.g Dissecting a flower (sexual reproduction in plants) e.g Lilies, tulips and daffodils make good flowers to dissect. e.g. find the different parts, label them and find out about their role in reproduction. e.g. I can use words such as pollination, fertilization and seed dispersal when describing them. I can describe asexual reproduction. e.g. investigation into whether you can grow a plant from the seeds of another plant. e.g. growing plants from cuttings. I can describe how things are classified. eg. give examples of classification keys for microorganisms, plants and animals. e.g. classification key of living and nonliving things examples. e.g. how can you further subdivide and name the groups of plants and animals based on similarities and differences. - how did I group them. e.g I can investigate fungi (experiment with types of bread and which conditions.	• Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other presentations • Identifying scientific evidence that has been used to support or refute ideas or arguments	*The White Giraffe by Lauren St John* *Book of Bones:10 Record- Breaking animals by Gabrielle Balkan and Sam Brewster.* organism microorganism fungus mushrooms classification keys environment fish amphibians reptiles birds mammals	**key people Carl Linnaeus (1707-1778) pet shop in Paignton zoo trip with workshop.**

	microorganisms, plants and animals give reasons for classifying plants and animals based on specific characteristics	using test results to make predictions to set up further comparative and fair tests. I can give reasons for classifying plants and animals based on specific characteristics. e.g. describing plants in Latin and see what it would have looked like back then. e.g. use the Linnaean classification system. e.g. dissect buttercups and link to classification key. e.g Air survey- What can Lichens tell us about air quality. e.g what bugs are living near you? Investigation. Identifying scientific evidence that has been used to support or refute ideas or arguments.		vertebrates invertebrates *Beetle Boy by M G Leonard*	
Sum 1& 2	**Materials** compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution	I can compare and group materials. e.g. use words including hardness, solubility, transparency, conductivity and magnets. e.g. suggest antonyms to describe the materials whilst describing properties of materials. e.g. investigate properties of materials by creating their own experiment. e.g. do magnets work through different liquids? Does the viscosity of a liquid affect magnetism? e.g. which material keeps a hot drink hot for the longest time? e.g which is the most absorbent kitchen towel?	• Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • Taking measurements, using a range of scientific equipment, with increasing accuracy and precision • Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and bar and line graphs • Using test results to make predictions to set up further comparative and fair tests • Reporting and presenting findings from enquiries, including conclusions, causal relationships	properties, hardness, solubility, transparency, electrical conductor, thermal conductor, response to magnets, dissolve, solution, separate, separating, solids, evaporation, filtering, sieving, melting, irreversible, new	

	use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic	e.g. what material is best for tug of war? I can tell you about why some materials dissolve in liquid to form a solution and describe how to recover from a solution. e.g. watch what happens when you add something to water. What happens to sugar? I can decide how mixtures might be separated, including through filtering, sieving and evaporating. e.g different ingredients, what happens to them in water? e.g. which type of sugar dissolves the quickest? I can give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. e.g. man made materials and natural materials (compare).	and explanations of results, in oral and written forms such as displays and other presentations • Identifying scientific evidence that has been used to support or refute ideas or arguments	material, burning, rusting, magnetism, electricity, chemists, Spencer Silver *Kensuke's Kingdom by Michael Morpurgo* *Stormbreaker – Anthony Horowitz*	