Skill -	Foundation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
(bold is NC)							
Working Sci (bold is NC) Questioning and enquiring planning	With prompting, ask a few simple questions about the world around us.	Ask simple questions about the world around us. Begin to recognise that they can be answered in different ways (different types of enquiry including - observing changes over time, noticing patterns, grouping and classifying, carrying out simple comparative tests, finding things out from secondary sources).	Ask questions about the world around us. Recognise that they can be answered in different ways (different types of enquiry including - observing changes over time, noticing patterns, grouping and classifying, carrying out simple comparative tests, finding things out from secondary sources).	Ask some relevant questions and use different types of scientific enquiries to answer them. Begin to explore everyday phenomena and the relationships between living things and familiar environments. Begin to develop their ideas about functions, relationships and interactions. Begin to raise their own questions about the world around them. Begin to make some decisions about which types of enquiry will be	Ask relevant questions and use different types of scientific enquiries to answer them. Explore everyday phenomena and the relationships between living things and familiar environments. Begin to develop their ideas about functions, relationships and interactions. Raise their own questions about the world around them. Make some decisions about which types of enquiry will be the best way of answering questions including	Begin to plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.Begin to explore and talk about ideas, ask their own questions about scientific phenomena, analyse functions, relationships and interactions more systematically.Begin to recognise some more abstract ideas and begin to recognise how these ideas help them to understand how the world operates.Begin to select the most appropriate ways to answer science questions using different types of scientific enquiry (including observing changes over different periods of time, noticing patterns, grouping and classifying, carrying out comparative and fair tests and finding things out using a wide range of secondary sources of	Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.Explore and talk about ideas, ask their own questions about scientific phenomena, analyse functions, relationships and interactions more systematically.Begin to recognise more abstract ideas and begin to recognise how these ideas help them to understand how the world operates.Begin to recognise scientific ideas change and develop over time.Select the most appropriate ways to answer science
Observing	With	Begin to observe	Observe closely using	types of enquiry will be the best way of answering questions including observing changes over time, noticing patterns, grouping and classifying, carrying out simple comparative and fair tests, finding things out using secondary sources. Begin to make	questions including observing changes over time, noticing patterns, grouping and classifying, carrying out simple comparative and fair tests, finding things out using secondary sources.	Regin to take measurements using a	ways to answer science questions using different types of scientific enquiry (including observing changes over different periods of time, noticing patterns, grouping and classifying, carrying out comparative and fair tests and finding things out using a wide range of secondary sources of information.)
measuring and	support,	closely, using simple	simple equipment.	systematic and	careful observations	range of scientific equipment, with	range of scientific equipment.
pattern	begin to	equipment.		careful observations	and, where appropriate,	increasing accuracy and precision,	with increasing accuracy and
seeking	observe		Use observations and	and, where	take accurate	taking repeat readings where	precision, taking repeat
	closely,	Use simple observations	ideas to suggest	appropriate, take	measurements using	appropriate.	readings where appropriate.
	using	and ideas to	answers to questions.	accurate	standard units, using a		Tilena: Commente and the second
	simple	suggest answers to	To observe changes	measurements using	range or equipment,	begin to identify patterns that might	found in the natural
	equipment.	questions.	over time and, with	a range of equipment,	and data loggers.	Begin to make their own decisions about	environment.

		To observe simple changes over time and, with guidance, begin to notice patterns and relationships. To say what I am looking for and what I am measuring. To know how to use simple equipment safely. Use simple measurements and equipment with support (eg hand lenses and egg timers) Begin to progress from non-standard units, reading cm, m, cl, l, °C	guidance, begin to notice patterns and relationships. To say what I am looking for and what I am measuring. To know how to use simple equipment safely. Use simple measurements and equipment with increasing independence (eg hand lenses and egg timers) Begin to progress from non-standard units, reading mm, cm, m, ml, l, °C	 including thermometers and data loggers. Begin to look for naturally occurring patterns and relationships and decide what data to collect to identify them. Help to make decisions about what observations to make, how long to make them for and the type of simple equipment that might be used. Learn to use some new equipment appropriately (eg data loggers). Begin to see a pattern in my results. Begin to choose from a selection of equipment. Begin to observe and measure accurately using standard units including time in minutes and seconds 	 Begin to look for naturally occurring patterns and relationships and decide what data to collect to identify them. Help to make decisions about what observations to make, how long to make them for and the type of simple equipment that might be used. Learn to use new equipment appropriately (eg data loggers). Can see a pattern in my results. Can choose from a selection of equipment. Can observe and measure accurately using standard units including time in minutes and seconds. 	 what observations to make, what measurements to use and how long to make them for and whether to repeat them. Choose the most appropriate equipment and explain how to use it accurately. Begin to interpret data and find patterns. Select equipment on my own. Can make a set of observations and say what the interval and range are. Begin to take accurate and precise measurements - N, g, kg, mm, cm, mins, seconds, cm² V, km/h, m per sec, m/ sec Graphs - pie, line 	Make their own decisions about what observations to make, what measurements to use and how long to make them for and whether to repeat them. Choose the most appropriate equipment and explain how to use it accurately. Can interpret data and find patterns. Select equipment on my own. Can make a set of observations and say what the interval and range are. Accurate and precise measurements - N, g, kg, mm, cm, mins, seconds, cm ² V, km/h, m per sec, m/ sec Graphs - pie, line, bar
Investigating	To begin to discuss my ideas about how	Perform simple tests with support. To begin to discuss my	Perform simple tests. To discuss my ideas about how to find	minutes and seconds Set up some simple practical enquiries, comparative and fair tests.	Set up simple practical enquiries, comparative and fair tests.	Begin to use test results to make predictions to set up further comparative and fair tests.	Use test results to make predictions to set up further comparative and fair tests.
	to find things out.	ideas about how to find things out. To begin to say what happened in my	things out. To say what happened in my investigation.	Begin to recognise when a simple fair test is necessary and help to decide how to	Recognise when a simple fair test is necessary and help to decide how to set it up.	Begin to recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why.	Recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why.
		investigation.		set it up. Begin to think of more than one variable factor.	Can think of more than one variable factor.	Begin to suggest improvements to my method and give reasons. Begin to decide when it is appropriate to do a fair test.	Suggest improvements to my method and give reasons. Decide when it is appropriate to do a fair test.

Recording and	Gather	Gather and record data	Gather and record	Gather, record, and	Gather, record, classify	Begin to record data and results of	Record data and results of
Reporting	and record	with some adult	data to help in	begin to classify and	and present data in a	increasing complexity using scientific	increasing complexity using
Findings	data with	support, to help in	answering questions.	present data in a	variety of ways to help	diagrams and labels, classification	scientific diagrams and labels,
	adult	answering questions.		variety of ways to	in	keys, tables and bar and line graphs.	classification keys, tables
	support,		Record simple data.	help in answering	answering questions.		and bar and line graphs.
	to help in	Begin to record simple		questions.		Begin to report and present findings	
	answering	data.	Record and		Record findings using	from enquiries.	Report and present findings
	questions.		communicate their	Begin to record	simple scientific		from enquiries.
		Begin to record and	findings in a range of	findings using simple	language, drawings,	Begin to decide how to record data	
		communicate their	ways.	scientific language,	labelled diagrams, keys,	from a choice of familiar approaches.	Decide how to record data from
		findings in a range of		drawings, labelled	bar charts and tables.		a choice of familiar approaches.
		ways.	Can show my results in	diagrams, keys, bar		Begin to choose how best to present	Can choose how best to present
			a table that my	charts and tables.	Report on findings from	data.	data.
		Can show my results in a	teacher has provided.		enquiries, including oral		
		simple table		Begin to report on	and written		
		that my teacher has		findings from	explanations,		
		provided.		enquiries, including	displays or presentations		
				oral and written	of results and		
				explanations, displays	conclusions.		
				or presentations of			
				results and	Use notes, simple tables		
				conclusions.	and standard units and		
					help to decide how to		
				Begin to use notes,	record and analyse their		
				simple tables and	data.		
				standard units and help			
				to decide how to	Can record results in		
				record and analyse	tables and bar charts.		
				their data.			
				Begin to record results			
				in tables and bar			
				charts			
Identifying,	Identify	Identify and classify	Identify and classify.	Begin to identify	Identify differences,	Begin to use and develop keys and other	Use and develop keys and other
grouping and	and	with some support.		differences,	similarities or changes	information records to identify,	information records to identify,
classifying	classify		Observe and identify,	similarities or changes	related to simple	classify and describe living things and	classify and describe living
	with	To begin to observe and	compare and describe.	related to simple	scientific ideas and	materials.	things and materials.
	support.	identify, compare and		scientific ideas and	processes.		
		describe.	Use simple features to	processes.			
			compare objects,		Talk about criteria for		
		To begin to use simple	materials and living	Begin to talk about	grouping, sorting and		
		features to compare	things and, with help,	criteria for grouping,	classifying and use simple		
		objects, materials and	decide how to sort and	sorting and classifying	keys.		
		living things and, with	group them.	and use simple keys.			
		help, decide how to			Compare and group		
		sort and group them.		Begin to compare and	according to behaviour or		
				group according to	properties, based on		
				behaviour or	testing.		
				properties, based on			
				testing.			

Research	To begin to find information to help me from books and computers with help.	To begin to use simple secondary sources to find answers. To begin to find information to help me from books and computers with help.	Use simple secondary sources to find answers. Can find information to help me from books and computers with help.	Begin to recognise when and how secondary sources might help to answer questions that cannot be answered through Practical investigations.	Begin to recognise when and how secondary sources might help to answer questions that cannot be answered through Practical investigations	Begin to recognise which secondary sources will be most useful to research their ideas.	Recognise which secondary sources will be most useful to research their ideas
Conclusions	Begin to talk about what they have found out and how they found it out.	Begin to talk about what they have found out and how they found it out. To begin to say what happened in my investigation. To begin to say whether I was surprised at the results or not. To begin to say what I would change about my investigation.	Talk about what they have found out and how they found it out. To say what happened in my investigation. To say whether I was surprised at the results or not. To say what I would change about my investigation.	I am beginning to use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. Am beginning to use straightforward scientific evidence to answer questions or to support their findings. With help, am beginning to look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions. With support, am beginning to identify new questions arising from the data, make new predictions and find ways of improving what they have already done. Am beginning to see a pattern in my results. Am beginning to say what I found out, linking cause and effect.	Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. Use straightforward scientific evidence to answer questions or to support their findings. With help, look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions. With support, identify new questions arising from the data, make new predictions and find ways of improving what they have already done. Can see a pattern in my results. Can say what I found out, linking cause and effect. Can answer questions from what I have found out.	Am beginning to report and present 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. Begin to identify scientific evidence that has been used to support or refute ideas or arguments. Begin to draw conclusions based on their data and observations, use evidence to justify their ideas, use scientific knowledge and understanding to explain their findings. Begin to use test results to make predictions to set up further comparatives and fair tests. Begin to look for different causal relationships in their data and identify evidence that refutes or supports their ideas. Use their results to identify when further tests and observations are needed. Begin to separate opinion from fact. Begin to draw conclusions and identify scientific evidence. Can use simple models. Know which evidence proves a scientific noint	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. Identify scientific evidence that has been used to support or refute ideas or arguments. Draw conclusions based on their data and observations, use evidence to justify their ideas, use scientific knowledge and understanding to explain their findings. Use test results to make predictions to set up further comparatives and fair tests. Look for different causal relationships in their data and identify evidence that refutes or supports their ideas. Use their results to identify when further tests and observations are needed. Separate opinion from fact. Can draw conclusions and identify scientific evidence. Can use simple models. Know which evidence proves a scientific point
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Am beginning to s how I could make it better.	ду	Begin to use test results to make predictions to set up further comparative and fair tests.	Use test results to make predictions to set up further comparative and fair tests.
Am beginning to a	nswer		
questions from w	at I		
have found out.			

	Foundation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Materials Rocks and Soils	Use all their senses in hands-on exploration of natural materials. Explore collections of materials with similar and/or different properties. Talk about the differences between materials and changes they notice.	<u>Everyday Materials</u> identify and name a variety of everyday materials distinguish between an object and the material from which it is made 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 <u>Materials</u> identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.	Rocks and soils 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	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 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	<u>Materials</u> 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 give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic 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 demonstrate that dissolving, mixing and changes of state are reversible changes know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating	Evolution and Inheritance recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents
Key indicator for ARE	Can explore soft and hard materials. E.g. witch's broom Can talk about strong materials e.g., little pigs house. Can talk about materials that feel the same and materials that feel different. Can talk about the materials they are using when making models. Can talk about the changes in water to ice and what happens when it melts. Can talk about thow materials change during cooking.	Can name materials - wood, glass, metal, rock, plastic, brick, fabric, wool, card, paper. Can name objects made by those materials. Can describe simple properties - hard/ soft, bendy/ stiff, flexible, strong/ weak, rough/ smooth, shiny/ dull, waterproof/ absorbent. Can sort materials using their properties Can answer a material enquiry based on properties. Know that materials have a use.	Can name objects, the materials, properties and if the material is man-made or natural (link to geo) Can link properties and suitability with reasoning. Know that different materials are suitable for different jobs. Whilst changing the shape of the object they can describe the action used. Can answer a material enquiry based on suitability and properties.	Can name some types of rocks. Can identify the use of different rocks. Can give physical features of each type of rock. Can classify different rocks based on criteria. Can explain how a fossil is formed. Can explain what soils are made from. Can carry out an enquiry into different types of soils.	Can identify and group examples of liquids, solids and gases. Can name properties of liquids, solids and gases, Can give examples of things that melt/ freeze and how their melting points differ. Can identify things that may affect the how quickly something melts. Can explain why a solid may melt at different speeds. Can give everyday examples of evaporation and condensation. Can describe the water cycle. Can measure temperature using a thermometer.	Can group materials based on the properties - hardness, solubility, transparency, conductivity (electrical and thermal) and response to magnets. Can carry out enquiries based on the properties and suggest suitable answers to the enquiry. Can explain the terms thermal conductor and thermal insulator. Can explain the term dissolving and give examples. Can identify reversible and irreversible changes of state and explain what is meant by these terms. Can give examples of irreversible changes. Can separate mixtures in different ways - filtering, sieving and evaporation (prior learning in Yr4) Can carry out fair tests and explain how it is fair.	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. Can recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. Can identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.

	Foundation	Year 1	Year 2	Year 3	Year 4	Year 5
Plants	Plant seeds and care for growing plants. Understand the key features of the life cycle of a plant Explore the natural world around them, making observations and drawing pictures of plants.	Identify and describe the basic structure of a variety of common flowering plants, including trees. Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.	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. observe and describe how seeds and bulbs grow into mature plants win	identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal 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	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 local and wider environment Recognise that environments can change and that this can sometimes pose dangers to living things.	
Key indicator for ARE	Can observe and talk about growth and change of a plant over time. Can talk about the life cycle of a bean E.g seed, roots, stem, leaves, bean Can produce simple drawings and observations of a plant.	Can identify the key features of flowering plants and the jobs that they do e.g. leaves - makes plant's food, flowers - attract the insects, petals - part of flower, roots - anchor to the ground and suck up the nutrients from the soil, bulb - plants grow from this, seed - plants grow from this, stem - keep the plant upright. Can identify the key features of trees e.g. leaves, trunk, roots, branches, blossom, fruit, bud, berry, petals, bark Knowing that a tree changes over time depending on seasons (link to seasonal changes) Can identify the difference between deciduous and evergreen trees and identify some examples. Can describe the growth of a sunflower.	Can identify a seed and a bulb. Know that the outer layer of a seed or bulb protects it. Can identify differences and similarities between bulbs and seeds. Can observe how seeds and bulbs grow over time. Can identify what every plant needs to grow; cress investigation in different conditions.	Can explain the functions of the parts of a flowering plant roots absorb water, anchor plant in place, stem transports nutrients/minerals around the plant and hold the leaves and flowers up in the air to enhance photosynthesis, pollination and seed dispersal. The leaves use sunlight and water to produce the plant's food. Some plants produce flowers which enable the plants to reproduce. Can describe the life cycle of flowering plants including pollination, seed formation, seed dispersal including examples. Can look at features of seeds to decide on the method of dispersal.	See living things and habitats	

Year 6
Living things and habitats 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 give reasons for classifying plants and animals based on specific characteristics
See living things and habitats

Key indicator for GD	Can identify the odd one out - parts of a plant and one that isn't. Can identify the odd one out - Parts of a tree and one that isnt Can identify the odd one out - Two wild plants and one tree Can identify the odd one out - Two common garden plants and one wild plant Can identify the similarities and differences between a yew and oak tree	Can identify whether a bulb or a seed would be best for a garden Can explain if all plants need the same amount of heat to grow Can explain why a bulb would not grow the best in an oven, just because it is warm.	Look at the shape of these seeds. How might these be dispersed? Some leaves are very big and spiky or poisonous. Why do you think that is?	Look at the picture of a cactus in the hot desert. What do you know about the conditions in the desert? How do you think it survives?	

	Foundation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Animals including Humans	Understand the key features of the life cycle of an animal and a human. Explore the natural world around them, making observations and drawing pictures of 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) identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense	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	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	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	describe the changes as humans develop to old age	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 and lifestyle on the way their bodies function describe the ways in which nutrients and water are transported within animals, including humans

Rey indicator for ARE	Can talk about the stages of the life cycle of a butterfly Can produce simple drawings and observations of animals. Can talk about how we have changed from a baby to an adult.	 can name a range of animals from the 5 groups - fish, amphibians, reptiles, birds and mammals. Can label key features of different animals - parrot, deer, goldfish Can explain the terms carnivores, herbivores and omnivores. Can sort and classify animals into carnivores, herbivores and omnivores. Can label the human body with common body parts. Can identify the 5 senses and the associated body parts. Can identify specific body parts (senses) have a job. Can investigate the different senses. 	 can identify different animals (common and uncommon) and their offspring. Can explain the changes in the lifecycle of a duck and chicken. Can identify that all animals need water, food, air and shelter for survival. Can identify 5 food groups - vegetables and fruits, meat and fish, carbohydrates, oils and sugars and dairy. Can identify what is meant by a balanced meal and create one using 5 food groups. Can identify how we can keep ourselves clean, Can identify the impact of exercise on our bodies (muscles stronger, bodies healthier) 	Can identify the P types of nutrients and their purpose. Can compare the nutitional needs of different animals (dog and human or cat and human and parrot) Can identify different types of skeletons Can identify the purpose of skeletons Can identify and label bones in a human skeleton. Can identify that muscles and joints help us move. Can identify the relationship between muscles and bones. Can compare skeletons of different animals – similarities and differences.	Can construct and interpret foods chains Can construct a food web. Can construct a food web. Can name different types of teeth and their functions. Can explain teeth in animals and if they are carnivores, herbivores and omnivores. Can investigate the impact of sugar on teeth. Can sequesce the main parts of the digestive system. Knowing the function of each part of the digestive system. Can demonstrate the journey of food through the body.	can explain the change boys and girls during pi Can explain that chang the human lifecycle go
Key indicator for GD		Can identify the consequence of animals not having a feature. Can identify the odd one out based on animal groups with reasoning. Can identify the odd one out based on eating habits.	Can identify the odd one out from offspring and adults.	James skips breakfast and eats takeaways every day when he gets home, which include burgers and pizzas. Elliot never goes to school without eating breakfast and makes sure he has all of his lunch and 5 fruit and vegetables a day. Q. Whose diet is healthier? Explain why. Ahmed says, "Me and my cat have the same diet. He likes to eat meat, and doesn't like vegetables." Is Ahmed correct? Explain why. Lucy said that a skeleton can move on its own. Is she correct? Explain your answer. Q. What does a skeleton need to move? Q: What do you think is the most important bone/s in the body? Why do you think that?	Lions are at the top of the food chain so that means that there are more of them any anything that they eat." Odd one out: wolf, oak tree, giraffe, goose In a forest fire, plants that are producers are often all killed. Why don't their consumers all die too? In the 4-part food chain, what would happen to the earthworm if there were no decaying leaves? Why would an adult lion be at the end of a food web but a cub would not? Do all animals need the same type of teeth? Think about the functions of the teeth and what the animals eat. Why could this be? Explain your thinking. Would how animals have changed over time have an impact on an animal's teeth? Why and how? Explain your thinking. I have just eaten some sugary sweets. How can I stop my teeth becoming rotten and decayed? Explain how you know, using what we have been learning about.	

that takes place in erty. s that all stages of <mark>wough.</mark>	Can draw a diagram of the circulatory system; label parts and functionsl heart, lungs, double circulatory system. Can describe the function of parts in the circulatory system. Can describe the main functions of blood. Can explain the positive and negative effects on diet, exercise, drugs and lifestyle on the body.
	Danielle says that her heart needs to be bigger than her baby brother's because she is taller and
	 than her baby brother's because she is taller and older. Based on what you have learnt today, do you agree with her? Why or why not? Give children two ideas of experiments to measure lung capacity. Which would be more reliable and why? Using a diagram of the blood vessels around the heart and information about each type, label each type of blood vessel. Does an increased pulse rate lead to an increased breathing rate? Why would this be? 100 years ago, smoking, alcohol and drug use was not considered to be bad for the body. Why do you think this was?

		Why is it important that food is broken down into small pieces in the body, based on what you know?	

	Foundation	Year 1	Year 2	Year 3	Year 4	Year 5
Living Things and Habitats Evolution and Inheritance	Begin to understand the need to respect and care for the natural environment and all living things. Also see Plants and animals and humans	Plants Name common plants and describe the basic structure of flowering plants, including trees. 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 mammals	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 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	Plants identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers	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 local and wider environment recognise that environments can change and that this can sometimes pose dangers to living things	describe the difference cycles of a mammal, an insect and a bird describe the life reproduction in some animals

	Year 6
ces in the life amphibian, an	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
e plants and	give reasons for classifying plants and animals based on specific characteristics
	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 different ways and that adaptation may lead to evolution

Key indicator for ARE	See plants and animal including humans	 See plants and animals including humans Can identify different animals and their offspring. Can identify some of the different parts of an animal. Can identify different types of animals. (identifying the features - cold blooded, scales etc) Can identify and classify different types of animals. (reptiles, mammals, birds, fish, insects and amphibians) 	Can identify examples of things that are dead and living. Can identify key British habitats - woodland, pond, urban and coast and animals and plants that they might find there. Can identify unfamiliar habitats - desert, ocean, arctic and rainforest and animals and plants that they might find there. Can identify how animals and plants are suited to a habitat. Can talk about what an animal eats and construct a simple food chain.	Identify the different parts of a flowering plant	Can group vertebrates in different ways. Can group invertebrates in different ways. Can use a classification key to group and identify living things; plants and animals. Can identify key things that would cause an ocean habitat to change.	Can describe sexual r plants and know the fu parts in this process. Can describe asexual r plants and know the fu parts in this process. Can describe the mammals (placental, marsupial) Can describe the lif amphibian and an insect Can describe sim differences between t
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eproduction in Inctions of the	Can identify the 5 kingdoms give key characteristics of animals that belong to the kingdoms and give examples.
eproduction in Inctions of the	Can classify helpful and harmful micro-organisms and give examples. Can create classification keys
lifecycle of monotreme,	Can use classification keys to identify unknown plants and animals.
ecycle of an t.	Evolution and Inheritance Can explain the process of evolution.
ilarities and he lifecycles.	Can give examples of how an animal or plant has evolved over time e.g. pepper moth and cactus.
	Give examples of things that lived millions of years ago and the fossil evidence to support this.

Key indicator for GD	Can identify the odd one out between a duckling, a chick, a gosling and a swan Can explain what would happen if a shark had no teeth Can identify which animal is the odd one out (Cow, Sheep, Pigeon or Human) Can understand that animals are different and explain what makes them different	Can identify if something is dead, alive or has never lived Can design their own microhabitat for Minibeasts Can explain why some animals would not survive in certain habitats (e.g. shark in a rainforest) Can identify mistakes made in a food chain	Are roots always at the bottom of plants? Explain your answer. How would the plant have grown had we removed the petals of the flower? Explain your answer.	How do animals with hydrostatic skeletons move when they have no bones? Giulia says "Animals and humans will have the exact same skeletons" Do you agree with this statement?	what are the advantages and disadvantages of sexual reproduction in plants? What are the advantages and disadvantages to plants using asexual reproduction? Compare the life cycle of a mammal to a bird. How are they similar/different? Use website independently go to <u>https://www.kidcyber.com.au/axolotls</u> Look at the life cycle of an axolotl. Has this amphibian experienced complete or incomplete metamorphosis? Explain your answer. should naturalists intervene in the natural world? Argue your case.	Can you explain Carl Linnaeus' contribution to science today? (we still use the Linnaeus system to classify living things). Q. Which elements of the Linnaeus system are still in use today? (animals and plants). Q. Which elements have been abandoned? (minerals) Q. What level has been added? (Domain). Allow chn to research independently to find the answers. provide chn with pictures of organisms. Chn to explain which Kingdom they belong to one and how they know e.g. a rat belongs to the animalia kingdom. I know this because a rat can move and it cannot make its own food. Are there any microorganisms that can be both helpful and harmful? (bacteria on the outside of your body can cause serious infections however the bacteria inside your body can protect against it. Studies have shown that animals without gut bacteria are more likely to catch serious infections. Humans have used bacteria is nelpful ways for thousands of years. Bacteria is used to make yogurt and cheese). If all offspring have the same parents, will they be identical? Why or why not? What adaptions would you expect to see in a desert living animal like a camel? Research different birds, such as ducks, eagles, flamingos and hummingbirds, to find out how their beaks are adapted to suit the foods they eat. What has DNA taught us about Neanderthals? Are visible traits are reliable way for scientists to draw conclusions? Why or why not?
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	Foundation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Seasonal Changes	Describe what they see, hear and feel whilst outside. Understand some important processes and changes in the natural world around them, including the seasons.	Observe changes across the four seasons Observe and describe weather associated with the seasons and how day length varies.				Earth and Space: Describe the movement of the Earth, and other planets, relative to the Sun in the solar system 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	
Earth and Space						The sky	

Key indicator for Can make simple Name the four seasons and when To know the relative size of the	
ADE observations of what they they occur in the year	
can see hear and feel while	
outside. For example, the beganing weather in any and Moon	
leaves are brown and have because the state of the second end of t	
follen off the trees	
relation to clothing suitable.	
Can explain some differences	
the plants in our solar system.	
weather in Summer and animals in the different	
Winter To understand how the Earth and	
other planets move in our solar	
Know that days are longer in system.	
summer than spring.	
To understand how the movement of	
the Earth creates day and night	
To know the movement of the Moon	
relative to the Earth.	
To know that the Moon appears as	
different shapes during its 28 day	
Key indicator for GD Can understand that it does not Can explain Scientific theories using	
always snow in the winter	
Can explain the differences	
Children work independently to	
summarize in writing what they have	
Can explain why there may be more	
sun than rain in summer	
relation to the sun and one another	
Can explain the differences	
between Summer and Spring	
Which planet would you move to if	
Farth became uninhabitable? Why?	
Why did it take such a long time to	
Why did it take such a long time to change from a geocentric model to	
Why did it take such a long time to change from a geocentric model to the helio-centric model2 What were	
Why did it take such a long time to change from a geocentric model to the helio-centric model? What were the important factors?	
Why did it take such a long time to change from a geocentric model to the helio-centric model? What were the important factors?	
Why did it take such a long time to change from a geocentric model to the helio-centric model? What were the important factors? Research why we have seasons and	
Why did it take such a long time to change from a geocentric model to the helio-centric model? What were the important factors? Research why we have seasons and how this affects the length of day	

	Foundation	Year 1	Year 2	Year 3	Year 4	Year 5
Light and Sound				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.	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 Recognise that sounds get fainter as the distance from the sound source increases.	
Key indicator for ARE				To understand how light helps us see. To understand that light can be reflected. To understand how we can protect our eyes from the sun. Knowing that opaque materials can protect our eyes. Comparing the suitability of materials at protecting our eyes. To understand how shadows are formed. To identify what makes shadows change.	To understand what sound is and how it is produced. To understand how sound travels. To investigate which material would make the best ear defenders. To investigate how distance impacts the sound that is heard (string telephones) To investigate pitch and volume of sounds. (different types of instruments - changing tension - size and length) To know that amplitude affects sound.	
Key indicator for GD				What do you see when there is absolutely no light? Why? Does the angle of the light affect how much light is reflected. can you make a shadow bigger or smaller? Explain your answer What will happen to the tree shadow if it was a cloudy day? Why do you think this?	Explain how this alarm clock can produce sound. Would a string telephone work around corners? Explain your answer using our key Sarah's radio has a volume setting from 0 (silent) to 100 (the loudest setting) She and her brother always sit right infront of it with the sound set to 100 so they can enjoy the music better. What would you say to the children about how they listen to the radio?	

Year 6
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 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.
To know that light travels in straight lines.
To prove how light travels in straight lines. (explore different ways to demonstrate that light travels in straight lines e.g. shining a torch down a bent and straight hose pipe, shining a torch through different shaped holes in card.
To understand why shadows have the same shape as the objects that cast them.
To understand how we see objects.
To know that white light can be split into different colours.
The Sky at Dusk: 'The sun shines so brightly that we can't see the stars
Ben thinks that shadows are always black - is he correct? Explain your answer. The girl is looking at the large mirror in front of her. She can see the reflection of the back of her head. The hairdresser is holding a small mirror. An arrow has been drawn to show the direction of some light. Draw TWO more arrows to show how the girl can see the reflection of the back of her head.

		look at the sound waves. Label the loud one and the quiet one. What do you think could be making the noises using your knowledge gained from today's lesson?	Make a judgment on how important Ibn al-Haytham contribution was.

	Foundation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Forces	Explore and talk about different forces they can feel.			Compare how things move on different surfaces Notice that some forces need contact between two 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 two poles Predict whether two magnets will attract or repel each other, depending on which poles are facing.		explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object 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.	
Key indicator for ARE	To investigate and talk about forces. For example: how the water pushes up when they try to push a plastic boat under it, how they can stretch elastic, snap a twig, but cannot bend a metal rod, magnetic attraction and repulsion.			To understand that forces are pushes and pulls (make things move, stop or change shape). To identify that some forces do not need contact (pull back to the ground (gravity without calling it that) and magnetism - how can you make something move without touching e.g. paper clip or a basketball comes back down to earth without touching it) To be able to identify magnetic materials. To explore how magnets behave towards each other. (Is there a		To identify and explain the forces acting upon objects. To explain the effect of gravity on an unsupported object. Newton meter To know the effects of air resistance. Parachutes To know the effects of water resistance. Boat shape To know the effects of friction. Best brake for a bike	

		pattern in the way that magnets	Knowing what the forces are used	
		attract and repel each other?)	for.	
		· · · · ·		
		To investigate different types		
		to investigate different types		
		ot magnet		
		- Do all magnets have the same		
		strength? Look at bar, ring,		
		button and horseshoe and		
		complete a comparative test e a		
		nicking up honor aling		
		picking up paper clips.		
Key indicator for CD		Thinking about how the surface	Ancwan quastions using Scientific	
Key indicator for GD		Thinking about now the surface	Answer questions using Scientific	
		of an object affects its	knowledge to explain now gravity	
		movement, can you identify	attects us.	
		which of these surfaces will be		
		the easiest for the ice skater	Discuss how results from a test	
		to glide across?	would differ if the variable was	
		Explain your answer.	changed.	
			Relate Scientific learning to real life	
		Think about what you have	scenarios.	
		learned today during your		
		experiment	Children to make successions about	
		experiment.	contract ro make suggestions about	
			scenarios using scientific knowledge.	
		Why would a steel paperclip be		
		drawn to a magnet when steel is		
		not one of our magnetic metals?		
		We have a north pole and a south		
		pole on earth. Why do you think		
		this is? Do you think it links to		
		magnets? Explain your thoughts		
		ingherer Eriphan your moughts.		
		When one of the magnets in		
		now apone of the magnets in		
		newspaper - answer the		
		tollowing questions		
		Will it still pick up paperclips?		
		Does it pick up as many		
		paperclips? Do magnets work		
		through paper? Children to make		
		predictions and then test		

	Foundation	Year 1	Year 2	Year 3	Year 4	Year 5
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	
					Recognise some common conductors and insulators, and associate metals with being good conductors.	
Key indicator for ARE					To identify and classify electrical items Context: mains, battery powered and none electrical.	
					To construct and label a circuit.	
					To know the function of different components - wires, bulb, battery.	
					To know how to draw and interpret circuit diagrams.	
					To know what is meant by conductor and insulator.	
					Know the purpose of a conductor and insulator.	
					To investigate electrical conductors (does the material light the circuit?)	
					To make a circuit with a switch.	

Year 6
associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit
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.
To know how to recognise and draw scientific circuit
symbols (construct circuits building on prior knowledge)
To know and explain what makes a complete circuit (problem solve looking at incorrect and correct circuits and explain)
To understand wire length and wire thickness can affect the brightness of a bulb.
To investigate circuits. Context: Make circuits to solve particular problems e.g. a quiet or a loud burglar alarm.
To observe and explain the effect of differing voltages in a circuit.

Key indicator for GD			True or false? "Everything that is
			run on mains can also be run on
			battery power."
			Explain your thinking.
			Give three reasons why a circuit may
			not work.
			Odd one out: a battery, a lightbulb
			and a motor. Can you find a reason for
			each one to be the odd one out?
			In predictions, could say which ones
			will not be good conductors and why.
			Is there any they are unsure about?
			Explain why.
			Write an evaluation of the
			experiment - how might you change it
			next time? (e a try different types
			of metal to see if one was better than
			another try different sized nieces
			of the metal to see of more/less
			electricity was conducted)
			electricity was conducted)
			unite on combonation in the in health
			write an explanation in their books
			explaining what would happen if the
			paper clip was replaced with a plastic
			hair clip and why they think that
			would happen.

Control test. Children to formulate own question and carry out scientific enquiry as a group. Q. How will you record/present your results? Adult to support initial decision-making if needed. Children will need to set up a control test and then compare everything to that e.g a 5cm length of wire as the control before trying longer pieces and comparing. Children could use Excel to present results.

Can you think of a question that you could answer in an enquiry? e.g. Does adding more cells to the circuit make the bulb brighter? What effect does adding more cells have on the noise of the buzzer? How can the motor be made to turn more quickly? What happens if a cell with a larger voltage is added to a simple circuit? Write suggestions on I.W.B for G.D children to use.