Whole School Chuckery Science Curriculum

Phase	<u>Year</u>	<u>Topic</u>	<u>Scientific</u>	NC focus	Disciplinary concepts	<u>Substantive</u>	Key knowledge
	group	<u>name</u>	<u>Enquiry</u>			<u>concepts</u>	
<u>KS1</u>	<u>Year 1</u>	On safari	What would you see on a safari in Kenya?	 Identify and name a variety of common animals Group animals according to what they eat 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) 	 Ask simple questions Make simple comparisons Find information using given sources. Draw diagrams 	Biology - Living things in their environment	 Children are able to identify and name a variety of common animals that can be found on safari. Children are able to group animals according to what they eat. Children can identify and name a variety of common animals that are carnivores, herbivores and omnivores. Children are able to talk about and group a variety of animals using a given criteria.
		Trees	Can you find a new family tree for Stickman and his family?	 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 Identify and name a variety of common animals Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties 	 Ask simple questions Make simple comparisons Find information using given sources. Draw diagrams e.g. parts of plants 	Biology - Living things in their environment	 Children are able to identify and name a variety of common wild and garden plants, including deciduous and evergreen trees when questioned and given pictures. Children are able to identify and describe the basic structure of a variety of common flowering plants, including trees. Children are able to compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. Children are able to group animals according to what they eat. Children can identify and name a variety of common animals that are carnivores, herbivores and omnivores. Children are able to talk about and group a variety of animals using a given criteria.

		- Recognise that soils are made from rocks and organic matter	Dhuring Fauth Children and the fau	
Wonderful weather	How does weather change across the seasons?	 Observe changes across the four seasons Observe and describe weather associated with the seasons and how day length varies 	 Ask simple questions. Make a simple prediction. Watch and record what happens by drawing pictures. Say what happened and think back to my original prediction. Draw diagrams Find information using given sources. Physics - Earth and space Children can name the four Children can make simple about the weather and can predictions about this. Children can describe associated which each seaso Children can make simple about changes across the see Children know that day leng on the season. 	seasons. rent types of e observations n make simple the weather on. e observations easons. gths vary based
Material	What is the best material for an umbrella?	 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 Distinguish between an object and the material which it is made from. 	 Make a simple prediction. Recognise when a test is unfair. Make simple comparisons. Watch and record what happens by drawing pictures. Find information using given sources. Chemistry – materials (properties and change) Children are able identify variety of everyday mater wood, plastic, glass, meta rock. Children can describe the s properties of a variety materials. E.g. when asked able to say that wood is a ha Children are able to comp together a variety of everyd the basis of their simple physich through exploration and inv Children are able to know between an object and the it is made from. 	and name a rials, including al, water, and simple physical of everyday I the child are ard material. are and group ay materials on sical properties restigation. the difference material which
Our local area	Geography focus	 Identify and name a variety of common wild and garden plants, Identify and describe the basic structure of a variety of common flowering plants, including trees Recognise that soils are made from rocks and organic matter 	 Ask simple questions. Find information using given sources. Draw diagrams e.g. parts of plants Biology – Living things and their environment. Children are able to identifi variety of common wild and when given images. E.g. da buttercup, fuchsia, pansy, su Children are able to identifi the basic structure of a varii flowering plants, including to leaves, flowers, stem and from Children know and can ta being made from rocks and other 	fy and name a d garden plants indelion, daisy, unflower. y and describe ety of common rees. E.g. roots, uit. alk about soils organic matter.

	Eating	Can food be a	- Identify, name, draw	•	Children are able to identify the parts	Biology –	•	Find information using given sources.
	healthy	work of art?	and label the basic		of the human body.	Living things	•	Concrete context - Draw diagrams e.g.
			parts of the human	•	Children are able to name the parts of	and their		narts of plants/ the body
			body and say which		the human body.	environment.		parts of plants, the body.
			part of the body is	•	Children are able to draw and label the			
			associated with each		basic parts of the human body.			
			sense.	Children	are able to say which part of the body is			
				associat	ed with each sense.			
	Plants	How do	- Observe and	•	Make a prediction and try to give a	Biology –	•	Children are able to talk about when they
		sunflowers grow	describe how seeds		simple reason.	Living things		have observed how seeds and bulbs grow
		so tall?	and bulbs grow into	•	Recognise one aspect to make my test	and their		into mature plants.
			mature plants		fair.	environment.	•	Children are beginning to understand the
			- Find out and	•	Use simple ways of measuring			life cycle of a plant and that some plants
			describe how plants		difference.			can regrow after they have died.
			need water, light and	•	Complete a table that my teacher has		•	Children can begin to talk about what
					given me recording what I have seen			nappens at each stage of a nowers life
			and stay healthy		Using pictures and simple words.			Children can talk about how they have
			and stay nearing	-	to show what I have found			created a fair test to explore what a plant
					Describe what happened and give a			needs to grow
					simple explanation of my results		•	Children are able to say what a plant needs
				•	Select information from a range of		-	to grow and stay healthy. E.g. water light
					given sources.			to grow and stay healthy. L.g. water, light
				•	Explore and create drawings and			and suitable temperature.
					physical models.			
<u>Year 2</u>	Animals	What do humans	- Understand that	•	Make a prediction and try to give a	Biology –	•	Children know that animals, including
	including	need to survive?	animals, including		simple reason.	Living things		humans, have offspring which grow into
	humans		humans, have	•	Recognise one aspect to make my test	and their		adults and are able to explain simply the
			offspring which grow		fair.	environment.		life cycle of them.
			into adults	•	Use simple ways of measuring		•	Children can give examples of offspring
			- Describe the basic		difference.	Biology –		that do and do not look like their adults.
			needs of animals,	•	Complete a table that my teacher has	reproduction,		E.g. sheep do but frogs don't.
			including numans, for		given me recording what I have seen	Inneritance	•	children are able to explain the basic needs
			survival (water, tood		using pictures and simple words.	and evolution.		of animals, including numans, for survival
			Doscribo tho	•	to show what I have found			e.g. water, 1000 and an and why these are
			importance for		Describe what happened and give a			Children know that exercise is important
			humans of evercise	-	simple explanation of my results			for humans
			eating the right	•	Select information from a range of		•	Children can test and talk about the effects
			amounts of different		given sources.			of exercise on the human body.
			types of food, and	•	Explore and create drawings and		•	Children know that foods are grouped into
			hygiene		physical models.			categories and can name them.
			,				•	Children can give examples of foods from
								each food group.
							•	Children know that a balanced diet is
								important to be healthy.

Bird feeder	Which materials are most suitable to make a bird feeder?	- Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses - Describe how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching	•	Make a prediction and try to give a simple reason. Recognise one aspect to make my test fair. Use simple ways of measuring difference. Complete a table that my teacher has given me recording what I have seen using pictures and simple words. Use simple pictograms and bar charts to show what I have found. Describe what happened and give a simple explanation of my results. Select information from a range of given sources.	Chemistry – materials (properties and change)	•	Children know that hygiene is an important part of looking after ourselves and can give examples of being hygienic e.g. washing hands. Children are able to select a material that is suitable for a given purpose building on their knowledge of materials in Year 1. Child are able to talk about the suitability of a material for a given purpose. Children can experiment with different materials to decide which would be used for their birdhouse. Children are able to experiment with objects that can be manipulated: modelling dough, pipe cleaners, tea towels, socks, drink can, elastic bands, drinking straws and sponges and can talk about how they can be changed by squashing, bending, twisting and stretching Children know that Charles Macintosh invented the first waterproof fabric by experimenting with materials and why this was an important invention.
Living things and their habitats	How can we help to protect 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 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 micro-habitats Describe how 	•	Complete a table that my teacher has given me recording what I have seen using pictures and simple words. Use simple pictograms and bar charts to show what I have found. Describe what happened and give a simple explanation of my results. Select information from a range of given sources. Explore and create drawings and physical models.	Biology – Living things and their environment.	• • • • •	Children know the difference between things that are living, things that are dead and things that have never been alive and the characteristics of the three different states. Children can group things into the three groups: living, dead and never been alive. Children are able to say that most living things line in habitats that are suited to their needs. Children are able to describe how different habitats provide the basic needs for different kinds of animals and plants. Children know how plants and animals depend on each other to survive in their habitat. Children can identify and name a variety of plants and animals in their habitats (including micro habitats) Children can say how animals get their food from plants and other animals and can create simple food chains to show this. Children are able to identify and name different sources of food.

		Plants	Why do plants have flowers?	food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food - 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	 Make a prediction and give a reason based on my everyday experiences. For example: "I think the little pieces will dissolve first because my Dad breaks it into little pieces when he makes jelly." With guidance, carry out a fair test by controlling two variables. Make systematic and careful observations and measurements using standard units. Complete a table where the headings are given to me by the teacher deciding what to write in the first column and what to record in the second column. Describe what happened, relate this back to my prediction and also give a simple explanation of my results. Research using given sources. e.g. research different food groups and how they keep us healthy. Abstract contexts e.g. processes and phenomena such as forces/ light. Use labelled diagrams and drawings and physical models. 	Biology – Living things and their environment.	 Children can identify different parts of flowering plants: roots, stem/trunk, leaves and flowers. Children can describe the function of different parts of flowering plants: roots, stem/trunk, leaves and flowers. Children can explain how they have set up an experiment to 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. Children know the different requirements of plants for life and growth to grave and the vary from plant to plant. Children know the different requirements of plants for life and growth is important for cultivating healthy and thriving plants. It is also important to recognize that different plants have different needs and preferences, and that these requirements can vary depending on factors such as climate, soil type, and other environmental conditions. Children can explain how they have investigated the way in which water is transported within plants. The roots absorb water from the soil. The stem transports water to the leaves. Water evaporates from the leaves. This evaporation causes more water to be sucked up the stem. The water is sucked up the stem. The water is sucked up the stem like water being sucked up through a straw. Children can explain the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and
LKS2	Year 3	Animals including	Where do humans get their	- Identify that animals, including humans, need the right types	Make systematic and careful observations and measurements using standard units	Biology – Living things	 including pollination, seed formation and seed dispersal. Children can identify that animals, including humans, need the right types and amount of nutrition
		humans	numans get their nutrients from?	need the right types	standard units.	Living things	and amount of nutrition.

			and amount of	•	• C	Complete a table where the headings	and their	•	Children can talk about what animals and
			nutrition, and that		a	re given to me by the teacher	environment.		humans need to stay healthy, showing an
			they cannot make		d	leciding what to write in the first			understanding of the food groups and the
			their own food; they		C	olumn and what to record in the			nutrients humans need for a healthy diet.
			get nutrition from		Se	econd column. Complete simple bar		•	Children can identify that animals,
			what they eat		c	harts to show my results.			including humans , cannot make their own
			- Identify that humans	•	R	Research using given sources. e.g.			food; they get nutrition from what they
			and some other		re	esearch different food groups and			eat.
			animals have		h	now they keep us healthy		•	Children can talk about how and why
			skeletons and muscles	•	• A	Abstract contexts e.g. processes and			different animals require a different
			for support,		р	phenomena such as forces/ light. Use			balance of nutrients and can gather and
			protection and		la	abelled diagrams and drawings and			understand a range of information from
			movement		р	physical models.			food labels.
				•	•			•	Children can identify that humans and
									some other animals have skeletons and
									muscles for support, protection and
									movement.
								•	Children can name, describe then start to
									discuss the features and advantages and
									disadvantages of different types of
									skeleton.
								•	Children can name the main parts of the
									human skeleton.
								Children	can give a simple explanation of how
								muscles	work.
	Rocks	What is beneath	- Compare and group	•	• •	Make a prediction and give a reason	Chemistry –	•	Children can compare and group together
		our feet?	together different		b	based on my everyday experiences.	materials		different kinds of rocks on the basis of
		041 10011	0						
			kinds of rocks on the		F	or example: "I think the little pieces	(properties		their appearance and simple physical
			kinds of rocks on the basis of their		F	vill dissolve first because my Dad	(properties and change)		their appearance and simple physical properties.
			kinds of rocks on the basis of their appearance and		Fi W b	vill dissolve first because my Dad preaks it into little pieces when he	(properties and change)	•	their appearance and simple physical properties. Group rocks based on difference aspects
			kinds of rocks on the basis of their appearance and simple physical		F w b m	vill dissolve first because my Dad preaks it into little pieces when he nakes jelly."	(properties and change)	•	their appearance and simple physical properties. Group rocks based on difference aspects of appearance, hardness and if they are
			kinds of rocks on the basis of their appearance and simple physical properties	•	F w b m W	vill dissolve first because my Dad breaks it into little pieces when he nakes jelly." With guidance, carry out a fair test by	(properties and change)	•	their appearance and simple physical properties. Group rocks based on difference aspects of appearance, hardness and if they are waterproof.
			kinds of rocks on the basis of their appearance and simple physical properties - Describe in simple	•	Fi W b m V Co	vill dissolve first because my Dad breaks it into little pieces when he makes jelly." With guidance, carry out a fair test by controlling two variables.	(properties and change)	•	their appearance and simple physical properties. Group rocks based on difference aspects of appearance, hardness and if they are waterproof. Children are able to name different types
			kinds of rocks on the basis of their appearance and simple physical properties - Describe in simple terms how fossils are	•	Fi w b m v v v v	vill dissolve first because my Dad breaks it into little pieces when he nakes jelly." With guidance, carry out a fair test by controlling two variables. Make systematic and careful	(properties and change)	•	their appearance and simple physical properties. Group rocks based on difference aspects of appearance, hardness and if they are waterproof. Children are able to name different types of rocks and what they are used for. E.g.
			kinds of rocks on the basis of their appearance and simple physical properties - Describe in simple terms how fossils are formed when things		Fr W b M V C C V O	vill dissolve first because my Dad breaks it into little pieces when he nakes jelly." With guidance, carry out a fair test by controlling two variables. Make systematic and careful observations and measurements using	(properties and change)	•	their appearance and simple physical properties. Group rocks based on difference aspects of appearance, hardness and if they are waterproof. Children are able to name different types of rocks and what they are used for. E.g. slate is used for roofs because it is
			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	•	Free works of the second secon	vill dissolve first because my Dad breaks it into little pieces when he nakes jelly." With guidance, carry out a fair test by controlling two variables. Make systematic and careful observations and measurements using tandard units.	(properties and change)	•	their appearance and simple physical properties. Group rocks based on difference aspects of appearance, hardness and if they are waterproof. Children are able to name different types of rocks and what they are used for. E.g. slate is used for roofs because it is waterproof. Children are deceribe in simple terms how
			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	•	Free weak of the second	vill dissolve first because my Dad breaks it into little pieces when he nakes jelly." With guidance, carry out a fair test by controlling two variables. Make systematic and careful observations and measurements using tandard units. Complete a table where the headings we given to me by the teacher	(properties and change)	•	their appearance and simple physical properties. Group rocks based on difference aspects of appearance, hardness and if they are waterproof. Children are able to name different types of rocks and what they are used for. E.g. slate is used for roofs because it is waterproof. Children can describe in simple terms how fossils are formed when things that have
			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 mode from sock	•	Free we be more than the second secon	vill dissolve first because my Dad vreaks it into little pieces when he nakes jelly." With guidance, carry out a fair test by controlling two variables. Make systematic and careful observations and measurements using tandard units. Complete a table where the headings ire given to me by the teacher lociding what to write in the first	(properties and change)	•	their appearance and simple physical properties. Group rocks based on difference aspects of appearance, hardness and if they are waterproof. Children are able to name different types of rocks and what they are used for. E.g. slate is used for roofs because it is waterproof. Children can describe in simple terms how fossils are formed when things that have lived are trapped with a rook.
			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	•	Free w b m W C C O St C a l d	vill dissolve first because my Dad vreaks it into little pieces when he nakes jelly." With guidance, carry out a fair test by controlling two variables. Make systematic and careful observations and measurements using tandard units. Complete a table where the headings ire given to me by the teacher leciding what to write in the first column and what to accord in the	(properties and change)	•	their appearance and simple physical properties. Group rocks based on difference aspects of appearance, hardness and if they are waterproof. Children are able to name different types of rocks and what they are used for. E.g. slate is used for roofs because it is waterproof. Children can describe in simple terms how fossils are formed when things that have lived are trapped within rock.
			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	•	Fi W b M C C V C S S C C a I d C C	or example: "I think the little pieces vill dissolve first because my Dad preaks it into little pieces when he makes jelly." With guidance, carry out a fair test by controlling two variables. Make systematic and careful observations and measurements using tandard units. Complete a table where the headings irre given to me by the teacher leciding what to write in the first column and what to record in the econd column.	(properties and change)	•	their appearance and simple physical properties. Group rocks based on difference aspects of appearance, hardness and if they are waterproof. Children are able to name different types of rocks and what they are used for. E.g. slate is used for roofs because it is waterproof. Children can describe in simple terms how fossils are formed when things that have lived are trapped within rock. Children know that Mary Anning was an important scientist in the history of fossils
			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	•	Fi W b M C C M S C C all C C C C C C C C C C C C C C C C	or example: "I think the little pieces vill dissolve first because my Dad preaks it into little pieces when he makes jelly." With guidance, carry out a fair test by controlling two variables. Make systematic and careful observations and measurements using tandard units. Complete a table where the headings are given to me by the teacher leciding what to write in the first column and what to record in the econd column. Complete simple bar hearts to show my recults	(properties and change)	•	their appearance and simple physical properties. Group rocks based on difference aspects of appearance, hardness and if they are waterproof. Children are able to name different types of rocks and what they are used for. E.g. slate is used for roofs because it is waterproof. Children can describe in simple terms how fossils are formed when things that have lived are trapped within rock. Children know that Mary Anning was an important scientist in the history of fossils. Children can easy that soils are made from
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			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	•	Fill W b M C C O St C C C C C C C C C C C C C C C C C C	or example: "I think the little pieces vill dissolve first because my Dad preaks it into little pieces when he nakes jelly." With guidance, carry out a fair test by controlling two variables. Make systematic and careful observations and measurements using tandard units. Complete a table where the headings are given to me by the teacher leciding what to write in the first column and what to record in the econd column. Complete simple bar tharts to show my results. Describe what happened, relate this pack to my prediction and also give a imple explanation of my results.	(properties and change)		their appearance and simple physical properties. Group rocks based on difference aspects of appearance, hardness and if they are waterproof. Children are able to name different types of rocks and what they are used for. E.g. slate is used for roofs because it is waterproof. Children can describe in simple terms how fossils are formed when things that have lived are trapped within rock. Children know that Mary Anning was an important scientist in the history of fossils. Children can say that soils are made from rocks and organic matter Soil - Soil is the uppermost layer of the Earth. It is a mixture of different things: minerals (the minerals in soil come from
			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	•	For With With Const O St Const	or example: "I think the little pieces will dissolve first because my Dad preaks it into little pieces when he nakes jelly." With guidance, carry out a fair test by controlling two variables. Make systematic and careful observations and measurements using tandard units. Complete a table where the headings are given to me by the teacher leciding what to write in the first column and what to record in the econd column. Complete simple bar charts to show my results. Describe what happened, relate this back to my prediction and also give a imple explanation of my results.	(properties and change)		their appearance and simple physical properties. Group rocks based on difference aspects of appearance, hardness and if they are waterproof. Children are able to name different types of rocks and what they are used for. E.g. slate is used for roofs because it is waterproof. Children can describe in simple terms how fossils are formed when things that have lived are trapped within rock. Children know that Mary Anning was an important scientist in the history of fossils. Children can say that soils are made from rocks and organic matter Soil - Soil is the uppermost layer of the Earth. It is a mixture of different things: minerals (the minerals in soil come from finely broken-down rock): air water

			Abstract contexts e.g. processes and phe such as forces/ light. Use labelled diagram	nomena ns and	organic matter (including living and dead plants and animals).
Light and shadow	How are shadows formed/changed?	 Recognise that he/she needs 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 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. 	 drawings and physical models. Make a prediction and give a rebased on my everyday experier For example: "I think the little will dissolve first because my D breaks it into little pieces when makes jelly." With guidance, carry out a fair controlling two variables. Make systematic and careful observations and measuremen standard units. Complete a table where the he are given to me by the teacher deciding what to write in the fill column and what to record in t second column. Complete simp charts to show my results. Describe what happened, relate back to my prediction and also simple explanation of my result Research using given sources. A structure of the second column and measures of the second prediction and also simple explanation of my result Research using given sources. A structure of the second column and measures of the second prediction and also simple explanation of my result Research using given sources. A structure of the second column and my results. Describe what happened, related back to my prediction and also simple explanation of my result Research using given sources. A structure of the second different food groups how they keep us healthy Abstract contexts e.g. processes phenomena such as forces/ light labelled diagrams and drawings physical models. 	eason Physics – nces. Energy pieces ad he test by ts using adings rst he le bar e this give a ts. 2.g. and s and nt. Use s and	 Children know that they need light in order to see things and that dark is the absence of light. Children know that light travels in a straight line. Children know that light is reflected from surfaces for us to be able to see them. Children know that light from the sun can be dangerous and that there are ways to protect eyes. Children can give examples of ways to protect our eyes. Children know that shadows are formed when the light from a light source is blocked by a solid object. Children can find patterns in the way that the size of shadows change. E.g. the closer the light source the larger the shadow.
Magnets and forces	How do magnets work?	 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 	 Make a prediction and give a rebased on my everyday experier For example: "I think the little will dissolve first because my D breaks it into little pieces when makes jelly." With guidance, carry out a fair controlling two variables. Make systematic and careful observations and measuremen standard units. Complete a table where the he are given to me by the teacher deciding what to write in the fit column and what to record in t second column. Complete simp charts to show my results. 	eason Physics – nces. forces pieces ad the test by ts using adings rst he ble bar	 The children can explain how have compared how things move on different surfaces e.g. how well different materials move on a rough surface. The children can say that some forces need contact between two objects, but magnetic forces can act at a distance The children can say that a magnets as having two poles. The children can explain through investigation how magnets attract or repel each other and attract some materials and not others. The children are able to compare and group together a variety of everyday materials on the basis of whether they are

			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	•	Describe what happened, relate this back to my prediction and also give a simple explanation of my results. Abstract contexts e.g. processes and phenomena such as forces/ light. Use labelled diagrams and drawings and physical models.		attracted to a magnet, and identify some magnetic materials. The children can use their knowledge of magnets to predict whether two magnets will attract or repel each other, depending on which poles are facing.
	Living things and their habitats	How can living things be grouped?	 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 and have an impact on living things Construct and interpret a variety of food chains, identifying producers, predators and prey. 	• • • •	Make a hypothesis which shows that I am beginning to think about the science behind it. Gather, record, classifying and presenting data in a variety of ways to help answer questions. Record findings in a range of ways e.g using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables. Use straightforward scientific evidence to answer questions or to support their findings Select information to support findings through research. Create labelled diagrams and drawings and physical models.	Biology – Living things and their environment.	 The children are able to group living things in a variety of ways based on their appearance and are able to say how they have used classification keys to help them. The children can use classification keys to help group, identify and name a variety of living things in their local and wider environment and can explain how they are able to do this and why it is important. The children know that environments can change and that this can sometimes pose dangers and have an impact on living things. E.g. if the icecaps keep melting animals that live there will have nowhere to live. The children can construct a variety of food chains, identifying producers, predators and prey. The children can interpret a variety of food chains, identifying producers, predators and prey.
<u>Year 4</u>	The digestive system	What happens to our food when we eat it?	 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 Understand that there are good and bad bacteria. 	•	Use straightforward scientific evidence to answer questions or to support their findings Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions e.g. What do you notice? What's changed? What would happen if? Was our test fair? Why/ Why not? Select information to support findings through research.	Biology – Living things and their environment.	 Children are able to describe the simple functions of the basic parts of the digestive system in humans and the order in which the food travels. The children can name the parts of the digestive system when given a diagram. Children can identify the different types of teeth in humans and their simple functions. Children are able to identify the names of the teeth when given an image/model and

				Create labelled diagrams and drawings and physical models.	are able to say what each type of teeth is used for.
					The children understand that there are good and bad bacteria and how this can affect their teeth and digestive system.
	States of matter	How do materials change when they are heated or cooled?	 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 	 Make a hypothesis which shows that I am beginning to think about the science behind it. Carry out a fair test learning more about variables. Gather, record, classifying and presenting data in a variety of ways to help answer questions. Take accurate measurements using standard units a range of equipment including thermometers and data loggers Record findings in a range of ways e.g using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables. Use straightforward scientific evidence to answer questions or to support their findings Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions e.g. What do you notice? What's changed? What would happen if? Was our test fair? Why/ Why not? Select information to support findings through research. Create labelled diagrams and drawings and physical models. 	 The children are able to say what makes a material a solid, a liquid or a gas and can give examples of each. The children can compare and group materials together, according to whether they are solids, liquids or gases. The children can set up and discuss how they have carried out a fair test to observe how 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.
	Sound	How are sounds made and heard?	 Identify how sounds are made, associating some of them with something vibrating Recognise that vibrations from sounds travel through 	 Make a hypothesis which shows that I am beginning to think about the science behind it. Carry out a fair test learning more about variables. Gather, record, classifying and presenting data in a variety of ways to halo approve augustions. 	 Children can say how sounds are made, associating some of them with something vibrating. Children know and can explain that vibrations from sounds travel through a medium to the ear. Children are able to experiment to find patterns between the pitch of a sound and and and and and and and and and a
			a medium to the ear - Find patterns between the pitch of a sound and features	 Record findings in a range of ways e.g using simple scientific language, 	patterns between the pitch of a sound and features of the object that produced it. E.g. longer strings produce a lower pitch than a shorter string.

			of the object that produced it - Find patterns between the volume of a sound and the strength of the vibrations that	•	drawings, labelled diagrams, keys, bar charts and tables. Use straightforward scientific evidence to answer questions or to support their findings Use results to draw simple conclusions, make predictions for new		•	The children are able to find patterns between the volume of a sound and the strength of the vibrations that produced it. E.g. using rice to show the size of vibrations when banging a drum and make links to the volume of the sound. The children are able to explain that
			produced it - Recognise that sounds get fainter as the distance from the sound source increases	•	values, suggest improvements and raise further questions e.g. What do you notice? What's changed? What would happen if? Was our test fair? Why/ Why not? Select information to support findings through research. Create labelled diagrams and drawings and physical models.			sounds get fainter as the distance from the sound source increases and why this happens.
	Electricity	How do you make an electric circuit game?	 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 	• • • •	Make a hypothesis which shows that I am beginning to think about the science behind it. Carry out a fair test learning more about variables. Make systematic and careful observations. Gather, record, classifying and presenting data in a variety of ways to help answer questions. Take accurate measurements using standard units a range of equipment including thermometers and data loggers Record findings in a range of ways e.g using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables. Use straightforward scientific evidence to answer questions or to support their findings Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions e.g. What do you notice? What's changed? What would happen if? Was our test fair? Why/ Why not? Create labelled diagrams and drawings and physical models.	Physics – Energy	• • • •	The children can identify common appliances that run on electricity when given images or physical examples of the appliances. The children are able to construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. The children can say 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. The children can say what happens when a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. The children are able to complete a fair test to be able to say some common conductors and insulators, and associate metals with being good conductors.

		All living things	What are the similarities and differences between living things?	 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 	•	Make a hypothesis and observations which shows that I am thinking about the science. Devise their own fair test by identifying variables. Take measurements using a range of scientific equipment (e.g. data loggers, thermometers) with increasing accuracy and precision, taking repeat readings and finding averages where appropriate. Record and interpret data and results of increasing complexity including scientific diagrams and labels,	Biology – Living things and their environment.	•	Children are able to classify living things (plants, animals and micro-organisms) into broad groups according to common observable characteristics, similarities and differences and can give reasons for their classification. Children are able to match groups of animals to their characteristics. Children are able to use the Linnaean system to classify living things. Children are able to describe the characteristics of microorganisms and how these can be useful and harmful. Children are able to give reasons for
				specific characteristics	•	classification keys, tables, scatter graphs, bar and line graphs. Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. Explore relevant information by using a wide range of secondary sources. Abstract contexts. Evaluate and create diagrams/ models e.g. states of matter; solar system. Create own versions of models.		•	classifying plants and animals based on specific characteristics. Children are able to set up their own investigation into harmful microorganisms and can say what the variables are and can draw conclusions from their findings.
<u>UKS2</u>	<u>Year 5</u>	Life cycles	What patterns of change can be seen among organisms?	- 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 Describe the changes as humans develop to old age	•	Make careful observations Make a hypothesis which shows that I am beginning to think about the science behind it. Record and interpret data and results of increasing complexity including scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. Explore relevant information by using a wide range of secondary sources. Abstract contexts. Create and evaluate diagrams/ models e.g. states of matter; solar system. Create own versions of models. e.g. circulatory system; light.	Biology – Living things and their environment Biology – reproduction, inheritance and evolution.	•	Children are able to explain the basic life cycles of a mammal. Children are able to explain the basic life cycles of an amphibian. Children are able to explain the basic life cycles of an insect Children are able to explain the basic life cycles of a bird. Children know that most plants and animals reproduce through sexual reproduction. This involves the coming together of sex cells, called gametes, which are usually produced by two different parents This is called mating. Children are able to describe the changes as humans develop to old age as they move from birth to infancy to childhood to adolescence to adult hood and into old age.

	Materials	What changes of	- Compare and group	•	Make a hypothesis which shows that I	Chemistry –	• • • •	Children are able to talk about the changes in humans at each life stage and how each stage of life is different. Children are able to explain that their bodies go through puberty and this an important change in their body. Hormones control these changes, which can be physical and/or emotional. Children are able to compare and group
		state are reversible?	together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets - Recognise 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 - Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic - Demonstrate that dissolving, mixing and changes of state are reversible changes	· · ·	am beginning to think about the science behind it. Devise their own fair test by identifying variables. Record and interpret data and results of increasing complexity including scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions e.g. What do you notice? What's changed? What would happen if? Was our test fair? Why/ Why not? Identify scientific evidence that has been used to support or refute ideas or arguments. Test the arguments in class and discuss. Explore relevant information by using a wide range of secondary sources. Explore how scientific ideas have developed over time.	materials (properties and change)		together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets and are able to say what they have done to be able to group them. Children are able to give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. E.g. plastic is used to cover Children are able to use their prior knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. Children are able to explain that some materials will dissolve in liquid to form a solution, and are able to test whether a substance can be recovered from a solution. Children are able to demonstrate that dissolving, mixing and changes of state are reversible changes through experimentation. Children are able to explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.

	Earth and space	How do the earth, moon and planets move in the solar system?	 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 Describe the movement of the Earth, and other planets, relative to the Sun in the solar system Describe the 	 Make a hypothesis which shows that I am beginning to think about the science behind it. Interpret data and results of increasing complexity including scientific diagrams and labels, classification keys. tables, scatter granbs, bar and Physics - Earth and space Children are able to describe the movement of the Earth, and other planets, relative to the Sun in the solar system. The children know the order of the planets starting with the planet closest to the sun.
			 bescribe 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 Recognise that light appears to travel in straight lines 	 Identify scientific evidence that has been used to support or refute ideas or arguments. Test the arguments in class and discuss. Explore relevant information by using a wide range of secondary sources. Explore how scientific ideas have developed over time. Identify evidence that has been used to support or refute ideas. Abstract contexts. Create and evaluate diagrams/ models. Children can say how the Moon moves in relation to the Earth and how this has an affect on the earth. E.g. tides. Children know that the Sun, Earth and Moon are approximately spherical bodies. Children are able to say that the earth rotates and can explain how this creates day and night and the apparent movement of the sun across the sky. Children can use information they are given to create a conclusion about the length of day at different times of the year.
	Forces	What things change the movement of objects?	 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 	 Make a hypothesis which shows that I am beginning to think about the science behind it. Devise their own fair test by identifying variables. Take measurements using a range of scientific equipment (e.g. data loggers, thermometers) with increasing accuracy and precision, taking repeat readings and finding averages where appropriate. Record and interpret data and results of increasing complexity including Make a hypothesis which shows that I am beginning to think about the forces forces forces forces and finding averages where appropriate. Children are able to explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. Children know that Sir Isacc Newton discovered gravity and can talk about how this happened. Children are able to investigate and 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	•	scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. Explore relevant information by using a wide range of secondary sources. Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions Abstract contexts. Create and evaluate diagrams (models		 Children can explain how they have carried out their investigations and are able to explain what their findings show. Children are able to explain that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect and how/why these work.
<u>Year 6</u>	The human heart	Is the heart the most important organ in our bodies?	- 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	•	Make a hypothesis which shows that I am beginning to think about the science behind it. Record and interpret data and results of increasing complexity including scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. Explore relevant information by using a wide range of secondary sources. Explore how scientific ideas have developed over time. Abstract contexts. Evaluate and create diagrams/ models e.g. states of matter; solar system. Create own versions of models.	Biology – Living things and their environment.	 Children are able to identify and name the main parts of the human circulatory system when given an image of a heart. Children are able to describe the functions of the heart, blood vessels and blood. Children are able to describe the ways in which nutrients and water are transported within animals, including humans. Children can discuss how heart rate is affected by exercise. Children can understand that regular exercise is important for a healthy body. Children can discuss the impact of drugs and lifestyle on the way bodies function.
	Evolution and inheritance	How have living things changed over time?	- 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	•	Make a hypothesis which shows that I am thinking about the science behind it. Record and interpret data and results of increasing complexity including scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. Identify scientific evidence that has been used to support or refute ideas or arguments. e.g. Looking at research from the work of scientists such as Jenner and Pasteur, finding out how their discoveries improved people's health. Test the arguments in class and discuss.	Biology – reproduction, inheritance and evolution.	 Children can know that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. Children can explain the terms adaption, evolution and natural selection and can used these in context. Children are able to explain that living things evolve via to natural selection. Children know that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. Children are able to identify how animals and plants are adapted to suit their

		- Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.	 Identify evidence that has been used to support or refute ideas. Explore relevant information by using a wide range of secondary sources. 		 environment in different ways and that adaptation may lead to evolution. Children are able to set up their own investigation to explore how beaks have adapted over time and can talk about why these adaptions have happened. Children can explain in simple terms what genes and DNA are. Children know who Charles Darwin is and the importance of his role in the theory are evolution and know that some people disagree with his theory.
Light	How is light used to solve crimes?	 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 	 Make a hypothesis which shows that I am beginning to think about the science behind it. Devise their own fair test by identifying variables. Take measurements using a range of scientific equipment (e.g. data loggers, thermometers) with increasing accuracy and precision, taking repeat readings and finding averages where appropriate. Record and interpret data and results of increasing complexity including scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. Explore relevant information by using a wide range of secondary sources. Abstract contexts. Evaluate and create diagrams/ models e.g. states of models. 	Physics – Energy	 Children know that light appears to travel in straight lines. Children are able to use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye. Children can understand how mirrors reflect light, and how they can help us see objects. Children are able to explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes. Children can investigate how refraction changes the direction in which light travels and are able to talk about refraction when questioned. Children can use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them through investigation.
Circuits	How can we manipulate an electrical circuit?	 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 	 Make a hypothesis which shows that I am beginning to think about the science behind it. Devise their own fair test by identifying variables. Record and interpret data and results of increasing complexity including scientific diagrams and labels, 	Physics – Energy	 Children can experiment with and associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. Children are able to compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches

		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	•	classification keys, tables, scatter graphs, bar and line graphs. Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. Explore relevant information by using a wide range of secondary sources. Explore how scientific ideas have developed over time. Evaluate diagrams/ models e.g. states of matter; solar system. Create own versions of models. e.g. circulatory system; light.		•	The children are able to recognise and use symbols when representing a simple circuit in a diagram and can label the voltage correctly. The children are able to talk about their understanding of how electricity has changed over time.
Zoo	What are the similarities and differences between living things?	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		Make a hypothesis and observations which shows that I am thinking about the science. Devise their own fair test by identifying variables. Take measurements using a range of scientific equipment (e.g. data loggers, thermometers) with increasing accuracy and precision, taking repeat readings and finding averages where appropriate. Record and interpret data and results of increasing complexity including scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. Explore relevant information by using a wide range of secondary sources. Abstract contexts. Evaluate and create diagrams/ models e.g. states of matter; solar system. Create own versions of models.	Biology – Living things and their environment.	• • • •	Children are able to classify living things (plants, animals and micro-organisms) into broad groups according to common observable characteristics, similarities and differences and can give reasons for their classification. Children are able to match groups of animals to their characteristics. Children are able to use the Linnaean system to classify living things. Children are able to describe the characteristics of microorganisms and how these can be useful and harmful. Children are able to give reasons for classifying plants and animals based on specific characteristics. Children are able to set up their own investigation into harmful microorganisms and can say what the variables are and can draw conclusions from their findings.