		Sul	oject: Science			Year Group: 3		
	Autumn 1	Autumn 2	Spring 1	Spring 2		Summer 1		
Саниноре Вламноре	Rocks and	Animals, incl.	Light	Plants		Plants		
the same of the	Soils	humans						
NC Objectives Covered (Taken directly from the National Curriculum) Red= substantive knowledge Blue= disciplinary knowledge	 Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. Describe in simple terms how fossils are formed when things that have lived are trapped within rock. Recognise that soils are made from rocks and organic matter. 	 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. 	 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 and describe the functidifferent parts of flowering plant stem/trunk, leaves and flowers. Explore the requirements of pla and growth (air, light, water, nut soil, and room to grow) and how from plant to plant. Investigate the way in which w transported within plants 	ants for life rients from they vary	nd describe the functions of arts of flowering plants: roots, , leaves and flowers. e part that flowers play in the life wering plants, including pollination, tion and seed dispersal	 Co diffe No cont mag dist: Ob repe mat Ob repe mat Co varie the attra som De pole Pre will dep 	
Working Scientifically- disciplinary (Taken from the PLAN materials/NC)	 Setting up simple practical enquiries, comparative and fair tests. Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. 	 Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions Asking relevant questions and using different types of scientific enquiries to answer them Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. Identifying differences, similarities or changes related to simple scientific ideas and processes 	 Ask relevant questions and use different types of scientific enquiries to answer them. Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. Using straightforward scientific evidence to answer questions or to support their findings. 	 Making systematic and careful observations and, where approtaking accurate measurements standard units, using a range of equipment, including thermom data loggers Ask relevant questions and use types of scientific enquiries to a them. Reporting on findings from enq including oral and written expladisplays or presentations of resconclusions 	priate, using eters and different answer uiries, anations, using eters and displays or conclusions •Gathering, help in answ	rward scientific evidence to answer or to support their findings. on findings from enquiries, ral and written explanations, presentations of results and s. , recording, classifying and data in a variety of ways to wering questions	facin •Set enq test •Asl they way •Asl usin enq •Ga and way que •Re scie labe char •Us conv new imp que •Re scie labe char vay	

Summer 2

Forces and

Magnets

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 epel each other and attract some naterials 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.

Setting up simple practical enquiries, comparative and fair ests

Asking questions and recognising hey can be answered in different vays

Asking relevant questions and using different types of scientific enquiries to answer them

Gathering, recording, classifying and presenting data in a variety of vays to help in answering questions.

Recording findings using simple cientific language, drawings, abelled diagrams, keys, bar harts, and tables.

Using results to draw simple onclusions, make predictions for ew values, suggest

nprovements and raise further uestions

Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions

Previous	Year 1 • Distinguish between an	Year 1Identify and name a variety of	Year 1Identify, name, draw and label	Year 2 •Observe and describe how seeds and bulbs	Year 2 • Observe and describe how seeds and bulbs	Yea Fin
Knowledge -What have children learnt previously that will support this next step?	 Distinguish between an object and the material from which it is made. Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. Describe the simple physical properties of a variety of everyday materials. Compare and group together a variety of everyday materials on the basis of their simple physical properties. Year 2 Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. 	 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). Year 2 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, hame, draw and label the basic parts of the human body and say which part of the body is associated with each sense. Describe the simple physical properties of a variety of everyday materials. (Y1 - Materials) 	 Observe and describe how seeds and builds 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 builds grow into mature plants. Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. 	sq sq str
Misconceptions -What are the common misconceptions in knowledge for this unit?	 melting, as a change of state, is the same as dissolving steam is visible water vapour (only the condensing water droplets can be seen) clouds are made of water vapour or steam the substance on windows etc. is condensation rather than water the changing states of water (illustrated by the water cycle) are irreversible evaporating or boiling water makes it vanish evaporation is when the Sun sucks up the water, or when water is absorbed into a surface/material. 	 certain whole food groups like fats are 'bad' for you certain specific foods, like cheese are also 'bad' for you diet and fruit drinks are 'good' for you snakes are similar to worms, so they must also be invertebrates invertebrates have no form of skeleton. 	 we can still see even where there is an absence of any light our eyes 'get used to' the dark the moon and reflective surfaces are light sources a transparent object is a light source shadows contain details of the object, such as facial features on their own shadow shadows result from objects giving off darkness. 	 plants eat food food comes from the soil via the roots flowers are merely decorative rather than a vital part of the life cycle in reproduction plants only need sunlight to keep them warm roots suck in water which is then sucked up the stem. 	 plants eat food food comes from the soil via the roots flowers are merely decorative rather than a vital part of the life cycle in reproduction plants only need sunlight to keep them warm roots suck in water which is then sucked up the stem. 	•th str

Year 2

Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.

• the bigger the magnet the stronger it is

•all metals are magnetic.

Learning	1. Can I sort and group	1. Can I understand what nutrition	1. Can I understand and explain	1.	Can I identify parts of different plants	1. Can I research and identify the stages of the	1.
•	different rocks based on	the human body needs? 2. Can I research the nutritional	what light is and why we need		and understand that different plants	lifecycle of a plant?	is a
Sequence	their appearance? 2. Can I make careful	value of different foods?	it?	2.	have different parts? Can I research the functions of different		2. tra
-Detail the learning	observations about the	3. Can I research the function of a		2.	parts of a plant?	2. Can I make observations of the parts of a	3.
sequence using key	simple properties of	human skeleton?	2. Can I explore different levels	3.	Can I investigate what a plant needs for	flower?	inv
questions in an ordered	rocks?	4. Can I compare and contrast	of light?		life and growth?		frid
sequence.	3. Can I understand how	animal and human skeletons?	3. Can I investigate the	4.	Can I research what different plants	3. Can I understand the process of pollination?	4.
-The questions should	rocks are formed?	5. Can I demonstrate my	reflectiveness of different		need for life and growth?	4. Can I observe different seeds and explain	att
have a sequential build	4. Can I explore the	understanding of how bones and	materials?	5.	Can I investigate the role of the stem in	the different methods of seed dispersal?	5.
up to answer the	properties of rocks and explain these?	muscles allow movement? 6. Can I investigate the link between		6	a plant? Can I sow seeds in the correct growing	the different methods of seed dispersal:	on no
-	5. Can I explain how	the size of a part of the body and	4. Can I understand how a	0.	conditions?	5. Can I explain the lifecycle of a plant?	6.0
overall learning	fossils are formed?	the outcome of an action?	shadow is formed?				ma
challenge.	6. Can I explain what soil						
	is made of and compare		5. Can I investigate what				
	different soils?		happens to a shadow when I				
	7. Can I investigate the		change the distance from the				
	water retention of		light source?				
	different types of soil?						
	Garden – collect seeds		6. Can I investigate what				
	for later in year. Plant		happens to the size of my				
	bulbs.		shadow throughout the day?				
Curriculum End	Children are able to identify and name some	Children will be able to describe the function of the human skeleton and	Children will understand what light is; how different materials		ildren will be able to use their knowledge the main features of plants and their	Children will be able to use their accumulated knowledge throughout the topic to write a	Ch the
Deinte	different types of rock.	muscles through creating a model of	reflective light and how		ferent functions as well as knowledge of	detailed report on the lifecycle of a plant	the
Points	They are able to explain	an elbow joint.	shadows are formed and can		w different plants survive in certain	including pollination and seed dispersal.	inv
-What will children	the properties of these		change throughout the day.		nditions to grow seeds.		dif
know and be able to do	rocks as a result of their		Children will demonstrate their				un
by the end of the unit?	investigations.		knowledge of light and shadow				ma
-What will the children			through their shadow				no
produce to			investigations.				dif
demonstrate this							to
knowledge?							

- 1. Can I describe whether a force is a push or a pull?
- Can I compare how things travel on different surfaces?
 Can I explain friction and
- investigate how to make less friction?
- 4. Can I investigate how magnets attract and repel?
- 5. Can I classify materials based on whether they are magnetic or
- not? 6. Can I investigate the strength of magnets?

Children will be able to design their own question to investigate the strength of magnets or investigate the magnetism of different metals. They will understand that some metals are magnetic, that magnetism is a non-contact force and how the different poles of a magnet react to each other.

Knowledge	1. I know that rock is a	1. I know that we need a balance of	1.	I know that we need light	1. I know that most plants have: roots,	1. I know that the stages of the life cycle of a	1.
-	naturally occurring material. I know there	different nutrients in our diet to	2	in order to see things. I know that the sun can	stem/trunk, leaves and flowers/petals. 2. I know that:	plant which include germination, growth, pollination, fertilisation and seed dispersal.	ар 2.
Sentences	are different types of	keep the body healthy – these	2.	damage our eyes and we	a. Roots anchor the plant into	poliniation, let thisation and seed dispersal.	2.
-Using the end points,	rock e.g. sandstone,	include carbohydrates (including sugars), protein, vitamins, minerals,		should not look directly at	the ground and absorb water	2. I know that some plants produce flowers	
what are the key	limestone,	fats, sugars, water – and fibre.		it.	and nutrients from the soil.	which enable the plant to reproduce.	
statements children	slate etc. which have	2. I know that different foods	3.	I know that darkness is the	b. Stem/trunk hold the plant up		3.
need to remember by	different properties.	contain different types of nutrients.		absence is the absence of	and carries water and	3. I know that pollen, which is produced by the	
the end of the unit?	2. I know that rocks can	3. I know that the human skeleton		light.	nutrients from the soil to the	male part of the plant, is transferred to the	
(I know that)	be hard or soft and that	allows our body to move, provides		I know that light can be reflected from different	leaves. A trunk is the stem of	female part of the plant to create seeds.	4.
(they have different sizes of grain or crystal. Rocks	support and protection.		surfaces. Objects are	a tree. c. Leaves make food for the		
(To show with shildren	can be different shapes	4. I know that humans and some		easier to see if they more	plant using sunlight and	4. I know that seeds can be dispersed in	
(To share with children	and sizes (stones,	animals have a skeleton for		reflective.	carbon dioxide from the air.	different ways.	
when it is taught during	pebbles,	movement, protection and support.	5.	I know that shadows are	d. Flowers/petals make seeds to		
the unit)	boulders).	5. I know that the bones and		formed when the light	grow into new plants. Their	5. I know that:	
	3. I know there are three	muscles in the human body work		from a light source is	petals attract pollinators to		5.
	different types of rock:	together to allow the body to move.		blocked by an opaque	the plant.	a. Germination is when a seed starts to	
	igneous, metamorphic	6. I know that the size of someone's		object.	3. I know that a plant needs these things for	grow.	
	and sedimentary.	hand or length of someone's legs		I know that the size of the	life and growth: air, light, water, nutrients	b. Growth is when the seedling turns	
	4. I know that rocks have	does not necessarily correlate with		shadow depends on the	from the soil and room to grow.	into a mature plant.	
	different durability and that some absorb water	how far someone can throw a ball		position of the light and surface.	4. I know that plants that survive in cold	c. Pollination is when pollen is	
	and some don't.	or how fast they can run.		Suildle.	conditions have thin leaves which help reduce water loss. They have shallow roots	transferred from the male to the	
	5. I know that some rocks				to access nutrients and water close to the	female part of the plant.	
	contain fossils. Fossils				surface of the soil.	d. Fertilisation is when seeds will form	
	were formed millions of					inside the plant.	
	years ago:				5. I know that plants that survive in hot		
	- When plants and				conditions have adapted their roots, stems,	Seed dispersal is when the seeds leave the	
	animals				and leaves to store more water and	plant to start the life cycle again.	
	died, they fell to the				decrease its loss due to the heat.		
	seabed.						
	- They became covered						
	and squashed by other material.						
	- Over time the						
	dissolving animal and						
	plant matter is replaced						
	by minerals from the						
	water.						
	6. I know that Soils are						
	made up of pieces of						
	ground down rock which						
	may be mixed with plant						
	and animal material (organic matter).						
	7. I know that the type of						
	rock, size of rock pieces						
	and the amount of						
	organic matter affect the						
	property of the soil.						
Key Vocabulary	Rock, stone, pebble,	Nutrition, nutrients, carbohydrates,		t, light source, dark,	Photosynthesis, pollen, insect/wind	Photosynthesis, pollen, insect/wind	Fo
	boulder, grain, crystals,	sugars, protein, vitamins, minerals,		ence of light, transparent,	pollination, seed formation, seed dispersal	pollination, seed formation, seed dispersal	fo
(To share with children	layers, hard, soft,	fibre, fat, water, skeleton, bones,		slucent, opaque, shiny,	(wind dispersal, animal dispersal, water	(wind dispersal, animal dispersal, water	ma
and add to working	texture, absorb water,	muscles, joints, support, protect,		t, surface, shadow, reflect,	dispersal), roots, stem, leaves, flower	dispersal) roots, stem, leaves, flower	ba
walls/knowledge mats)	soil, fossil, marble, chalk, granite, sandstone, slate,	move, skull, ribs, spine	mirr	or, sunlight, dangerous			ma
	soil, peat,						ati me
	son, peat, sandy/chalk/clay soil,						po
							1 00
	permeable/impermeable						
	permeable/impermeable, durable, hardwearing						

I. I know that a force is a push or a pull.

- I know that an object will move faster on a smooth surface and slower on a rough surface.
- I know that friction between two surfaces will slow an object down.
- I know that:
 - a. opposite poles of a magnet attract and same poles repel.
 - a magnet has a North and South pole.
- I know that some metals are magnetic and materials like wood/plastic are not magnetic.

Force, push, pull, twist, contact force, non-contact force, magnetic force, magnet, strength, bar magnet, ring magnet, button magnet, horseshoe magnet, attract, repel, magnetic material, metal, iron, steel, poles, north bole, south pole

Enrichment	Local walk – observe	STEM ambassadors/parent doctors		Harlow Carr – How plants grow workshop.	Bramhope in Bloom to support growing in the	
Enrichment Activities (trips, residentials, speakers, SMSC)	Local walk – observe rocks used for different purposes including visit to churchyard to look at gravestones and changes in rock over time.	STEM ambassadors/parent doctors to deliver talk about skeleton/nutrition/teeth or digestion.		Harlow Carr – How plants grow workshop. Growing vegetables and flowering plants in school wildlife garden.	Bramhope in Bloom to support growing in the garden. Beekeeper visit. Community garden day.	
Physical Resources (artefacts) Cross	Different rock samples Magnifying glasses Pipettes Soil samples A Pebble in My Pocket—	Food tins Human and animal x rays Professor Astro Cat's Human Body	Torches Batteries Mirrors Light boxes Reflective/non-reflective materials The Game in the Dark—Herve	Flower and vegetable seeds Propagators Soil Garden gloves Trowels Markers Containers to collect and store seeds iPads with Pl@ntnet app The Story of Frog Belly Rat Bone by Timothy	Flower and vegetable seeds Propagators Soil Garden gloves Trowels Markers Containers to collect and store seeds Microbits A Seed is Sleepy—Dianna Aston & Sylvia Long	Mag Mag obje Toy Ran Mat
Curricular learning (Include opportunities for writing and quality texts)	Meredith Hooper Stone Girl, Bone Girl— Laurence Anholt Geography – natural resources Art – making clay 'mold and cast' fossils, sketching fossils	Odyssey by Dominic Walliman Argh! There's a skeleton inside you Maths – measuring length of limbs to look for patterns e.g. Do people with long femurs have long ulnas? Recording data. Computing – iPads <u>https://www.mcdonalds.com/gb/en- gb/good-to-know/nutrition- calculator.html</u>	Tullet The Dark—Lemony Snickett DT – designing shadow puppets and theatre – explore suitable materials for making shadows. Tie in with literacy text.	Basil Ering Bloom—Nicola Skinner The Secret Sky Garden The Great Kapok Tree Under the canopy Computing - Using Pl@ntnet app to identify plants in our wildlife garden. Using microbits to monitor soil moisture <u>https://makecode.microbit.org/courses/ucp- science/soil-moisture</u>	Seed Safari by Judith Heneghan DT – cooking with vegetables grown. Computing – use iPads for secondary research. <u>https://www.bbc.co.uk/bitesize/clips/zqqyrdm</u>	dist
Local Learning including outdoor learning	Pupils talk about the properties of rocks in the playground or wildlife garden. Pupils could go on a local walk around Bramhope to observe different rock types (stone houses, gravestones in church yards). Pupils could visit local church yard to look at effects of weathering on stone over time. Pupils dig in the soil in the wildlife garden to look for rocks and organic matter. Check CLEAPSS for health and safety guidance.	Pupils identify the producers, predators and prey in the micro- habitats in the wildlife garden/field.	Pupils look for shadows in the playground caused by the objects blocking the light from the Sun. Pupils use the Sun as a light source to create shadows with their bodies. Pupils to go out at different times of the day and make the same shape. Partner to draw around their shape at different times of the day and then compare shapes.	Pupils could design flower garden and plant seeds. Later in the year, pupils describe and make careful drawings of the parts of a range of plants that they have planted. Alternatively, make observations of plants already in the wildlife garden. Pupils participate in scavenger hunt and identify the parts of a range of plants in the wildlife garden that they find on the ground e.g. seeds, fruit, leaves. Children to sort/group back in the classroom. Pupils take photographs or collect samples of parts of plants in the playground to sort and group.	 Pupils observe how the plants in the playground or local environment change through the year (half termly), looking for buds, flowers, seeds and berries. Use iPads to take photos and then annotate photos with observations. Pupils record the changes that take place through the year to plants in the playground or local environment. Use identification charts to help identify different plants that they are observing. Conduct scavenger seed hunts throughout the year to facilitate discussions about different types of seeds and seed dispersal. 	Pup acro play Pup sled plas diffe betv
Opportunities for cultural Diversity				Learning about diversity in science careers and scientists during science week.		

Magnets Magnetic and non-magnetic

objects

oy cars

amps

Maths – measuring listance/recording data.

Pupils explore moving objects across different surfaces in the layground.

Pupils could pull each other on ledges (could be made by pupils or plastic sledges) and compare different surfaces. Pupils should be ble to feel the difference in friction etween different surfaces.