St Augustine's School

Science Components and Composite

Note that which will be sent the sent of the sent t	Reception	Year 1	Year 2	Year 3	Year 4	Y	ear 5	Year 6
This process is a sixt of the second of the	Early Learning Goal	National Curriculum Objectives	::	National Curriculum Objectives:		National Cur	riculum Objectives	::
and this power grows can all oncy daily glaster option. If the power program can all oncy daily glaster opt	ELG 05 Health and self-care: Children know the importance for good health of physical	methods, processes and skills th		methods, processes and skills thr	· .	methods, pro	ocesses and skills th	— ·
In the control product bender the control of agreement of the control of the cont	and talk about ways to keep healthy and safe. They	be answered in different	ways	scientific enquiries to ans	wer them	ques	tions, including rec	ognising and controlling
the congregation of processing for the control of t	hygiene and personal needs	 performing simple tests 		fair tests		- takin	g measurements, u	ising a range of scientific
The SEA The vest Courter or common and supplementary control of courter or common and supplementary control of courter or common and supplementary courter or courter or common and supplementary courter or cour	successfully, including dressing and going to the			appropriate, taking accur	ate measurements using	takin	g repeat readings v	vhen appropriate
Location places of a place of the control place of	toilet independently.	•	data to help in answering					
And the control of th	ELG 14 The world: Children know about similarities and	questions						
destyne description of control of the control of th	differences in relation to places, objects, materials and	plants, including decidu	ous and evergreen trees	 recording findings using s 	simple scientific language,	comp	parative and fair tes	sts
before the control and control	living things. They talk about	•	•	- reporting on findings from	m enquiries, including oral and	inclu	ding conclusions, ca	ausal relationships and
Internal theorems of control to district place of control to district plac	immediate environment and	•	•		plays or presentations of results	The state of the s		
describe and compare the southurs of a variety of common strain stock, annothers prefet, or the and compared the southurs of a variety of common strain stock, annothers the strain of the strain, when do an annother strain strain of the strain stra	from one to another. They	- identify and name a vari	iety of common animals that are			The state of the s		dence that has been used to
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destination, council control the basic pain, or de- according with subsection or conject and the material from distinguish subsection or conject and the material from everyday control places. Compare and grants topiched a victorial of the places of the material of the subsection of	some things occur, and talk			simple scientific ideas and	d processes	an an	nphibian, an insect	and a bird
secondard with each sense of the control sense of t	about changes.			questions or to support t	heir findings.			s of reproduction in some plants
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be basis of their appearance and simple physical properties of their appearance and simple physical properties of the pr		- identify that most living t			ther different kinds of rocks on	· ·		
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- recognise that soils are made from rocks and organic matter - describe how wards and fiber so dourse of food observe and describe how begins and bulbs grow into mature plants - find out and describe how begins and bulbs grow into mature plants - find out and describe how begins and bulbs grow into mature plants - find out about and describe how begins may be present the plant plants and some stary healthy and out about and describe her began and describe her begins meet ourse, (peting which grow man adults) - find out about and describe her beats anneals, relating the plants, including humans, have offspring which grow man adults - find out about and describe her beats anneals which grows and the plants and describe the proportions of the plants and describe the plants, including wood, metal, plastic, may be a plant the plants and describe the plants and described the plant		The state of the s	now they depend on each	- describe in simple terms		- descr	ribe the movement	of the Earth and other planets
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- construct and interpret a variety of food chains, identifying producers, predators and prey - 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 - identify how sounds are made, associating some of them with something vibrating - recognise that light appears to travel in straight lines to explain that objects are seen because they give out or reflect light sources to our eyes or from light sources to objects and then to our eyes or from light sources to objects and then to our eyes - when with something vibrating - recognise that light appears to travel in straight lines to explain that to bjects are seen because they give out or reflect light sources to our eyes or from light sources to objects and then to our eyes - with the number and voltage of cells used in the				- identify the different type		inhab	oited the Earth milli	ions of years ago
- 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 - identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution - recognise that light appears to travel 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 - identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution - recognise that light appears to travel 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 that objects are seen because they give out or reflect light into the eye - was the idea that light travels 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 - associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the				•	variety of food chains,	_	-	
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 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 whether they are solids, liquids or gases environment in different ways and that adaptation may lead to evolution recognise that light appears to travel in straight lines 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 appears to travel in straight lines 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 appears to travel 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 objects and then to our eyes use the idea that light appears to travel 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 objects and then to our eyes use the idea that light appears to travel in straight lines to explain that objects are seen because they give out or reflect light into the eye explain that objects are seen because they give out or reflect light into the eye use the idea that light appears to travel in straight lines to explain that objects are seen because the							•	
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 - identify how sounds are made, associating some of them with something vibrating - recognise that light appears to travel 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 appears to travel 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 objects and then to our eyes - use the idea that light appears to travel in straight lines to explain that objects are seen because they give out or reflect light into the eye - which is appears to travel in straight lines to explain that objects are seen because they give out or reflect light into the eye - which is appears to travel in straight lines to explain that objects are seen because they give out or reflect light into the eye - which is appears to travel in straight lines to explain that objects are seen because they give out or reflect light into the eye - which is appears to travel in straight lines to explain that objects are seen because they give out or reflect light into the eye - was the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye - was the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye - was the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the explain that objects are seen because they give out or reflect light into the explain that objects				whether they are solids, I	iquids or gases	envir	onment in differen	· ·
(°C) - identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature - 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 - identify the part played by evaporation and condensation in the water cycle and associate the rate light into the eye - explain that we see things because light travels 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 - sosociate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the				are heated or cooled, and	d measure or research the	- recog	gnise that light appo	
condensation in the water cycle and associate the rate of evaporation with temperature 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 explain that we see things because light travels 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 associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the				The state of the s	s nappens in degrees Celsius		_	
of evaporation with temperature - 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 - 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 - sosociate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the						_	•	gs because light travels from
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 - use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them - associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the				of evaporation with temp	perature	light	sources to our eyes	=
medium to the ear - find patterns between the pitch of a sound and features of the object that produced it cast them - associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the				them with something vib	rating	- use t	he idea that light tr	
of the object that produced it buzzer with the number and voltage of cells used in the				medium to the ear		cast t	them	
							_	· · · · · · · · · · · · · · · · · · ·
- find patterns between the volume of a sound and the strength of the vibrations that produced it				- find patterns between th	e volume of a sound and the			

- recognise that sounds get fainter as the distance from the sound source increases
- identify common appliances that run on electricity
 construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs,
- 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
- 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
- _

Working Scientifically

switches and buzzers

Can they talk about what they see, touch, smell, hear or taste?

Can they use simple equipment to help them make observations?

Challenge

Can they find out by watching, listening, tasting, smelling and touching?

Can they perform a simple test? Can they tell other people about what they have done?

Challenge

Can they give a simple reason for their answers?

Can they talk about what they see, touch, smell, hear or taste?

Can they use simple equipment to help them make observations?

Challenge

Can they find out by watching, listening, tasting, smelling and touching? Can they carry out a simple fair test? Can they explain why it might not be fair to compare two things? Can they say whether things happened as they expected? Can they suggest how to find things out? Can they use prompts to find things out?

Challenge

Can they say whether things happened as they expected and if not why not? Can they use different ideas and suggest how to find something out?
Can they make and record a prediction before

testing?
Can they plan a fair test
and explain why it was
fair?

Can they set up a simple fair test to make comparisons?
Can they explain why they need to collect information to answer a

question? **Challenge**

Can they record and present what they have found using scientific language, drawings, labelled diagrams, bar charts and tables?

Can they set up a simple fair test to make comparisons? Can they plan a fair test and isolate variables, explaining why it was fair and which variables have been isolated? Can they suggest improvements and predictions? Can they decide which information needs to be collected and decide which the best way to collect it is? Can they use their findings to draw a simple conclusion?

Challenge

Can they plan and carry out an investigation by controlling variables fairly and accurately?
Can they use test results to make further predictions and set up further comparative tests?

Can they plan and carry out a scientific enquiry to answer questions, including recognising and controlling variables where necessary? Can they make a prediction with reasons? Can they use test results to make predictions to set up comparative and fair tests? Can they present a report of their findings through writing, display and presentation?

Challenge

ways to test an idea, choose the best way and give reasons?
Can they vary one factor whilst keeping the others the same in an experiment?
Can they use information to help make a prediction?
Can they explain, in simple terms, a scientific idea and what evidence supports it?

Can they explore different

Can they explore different ways to test an idea, choose the best way, and give reasons? Can they vary one factor whilst keeping the others the same in an experiment? Can they explain why they do this? Can they plan and carry out an investigation by controlling variables fairly and accurately? Can they make a prediction with reasons? Can they use information to help make a prediction? Can they use test results to make further predictions and set up further comparative tests? Can they explain, in simple terms, a scientific idea and what evidence supports it? Can they present a report of their findings through writing, display and presentation?

Challenge

Can they choose the best way to answer a question? Can they use information from different sources to answer a question and plan an investigation? Can they make a prediction which links with other scientific knowledge? Can they identify the key factors when planning a fair test? Can they explain how a scientist has used their scientific understanding plus good ideas to have a breakthrough?

Identifying and classifying

Can they identify and classify things they observe?
Can they think of some questions to ask?
Can they answer some scientific questions?
Can they give a simple reason for their answers?
Can they explain what they have found out?
Challenge

Challenge
Can they talk about
similarities and
differences?
Can they explain what
they have found out using

scientific vocabulary?

Can they organise things into groups?
Can they find simple patterns (or associations)?
Can they identify animals and plants by a specific criteria, eg, lay eggs or not; have feathers or not?
Challenge

Can they suggest more than one way of grouping animals and plants and explain their reasons Can they measure using different equipment and units of measure? Can they record their observations in different ways? labelled diagrams, charts etc. Can they describe what they have found using scientific language? Can they make accurate measurements using standard units?

Challenge

Can they explain their findings in different ways (display, presentation, and writing)?
Can they use their findings to draw a simple conclusion?
Can they suggest improvements and predictions for further tests?

Can they take
measurements using
different equipment and
units of measure and
record what they have
found in a range of ways?
Can they make accurate
measurements using
standard units?
Can they explain their
findings in different ways
(display, presentation,
and writing)?

Challenge

Can they record more complex data and results using scientific diagrams, classification keys, tables, bar charts, line graphs and models?

Can they take
measurements using a
range of scientific
equipment with increasing
accuracy and precision?
Can they take repeat
readings when
appropriate?
Can they record more
complex data and results
using scientific diagrams,
labels, classification keys,
tables, scatter graphs, bar
and line graphs?

Challenge

Can they decide which units of measurement they need to use?
Can they explain why a measurement needs to be repeated?

Can they explain why they have chosen specific equipment? (incl ICT based equipment) Can they decide which units of measurement they need to use? Can they explain why a measurement needs to be repeated? Can they record their measurements in different ways? (Inc. bar charts, tables and line graphs) Can they take measurements using a range of scientific equipment with increasing accuracy and precision?

Challenge

Can they plan in advance which equipment they will need and use it well?
Can they make precise measurements?
Can they collect information in different ways?
Can they record their measurements and observations systematically? Can they explain qualitative and quantitative data.

Recording Findings

Can they show their work using pictures, labels and captions?
Can they record their findings using standard units?
Can they put some information in a chart or table?
Challenge

Can they use ICT to show their working?
Can they make accurate measurements?

Can they use text,
diagrams, pictures, charts,
tables to record their
observations?
Can they measure using
simple equipment?

Challenge

Can they use information from books and online information to find things out?

Can they explain what they have found out and use their measurements to say whether it helps to answer their question? Can they use a range of equipment (including datalogger) in a simple test?

Challenge

Can they suggest how to improve their work if they did it again?

in their evidence or measurements? Can they make a prediction based on something they have found out? Can they evaluate what they have found using scientific language, drawings, labelled diagrams, bar charts and tables? Can they use straightforward scientific evidence to answer questions or to support their findings? Can they identify differences, similarities or changes related to simple

Can they find any patterns

processes?
Challenge

scientific ideas or

Can they report findings from Investigations through written explanations and conclusions?
Can they use a graph or diagram to answer scientific questions?

Can they report and present findings from enquiries through written explanations and conclusions?
Can they use a graph to answer scientific questions?

Challenge

Can they find a pattern from the data and explain what it shows?
Can they link what they have found out to other science?
Can they suggest how to improve their work and say

why they think this?

they use a graph to answer scientific questions? Can they link what they have found out to other science? Can they suggest how to improve their work and say why they think this? Can they record more complex data and results using scientific diagrams, classification keys, tables, bar charts, line graphs and models? Can they report findings from investigations through written explanations and conclusions? Can they identify scientific evidence that has been

Can they find a pattern

explain what it shows? Can

from their data and

ideas or arguments?
Can they 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

used to support to refute

presentations?
Challenge

displays and other

Can they draw conclusions from their work?
Can they link their conclusions to other scientific knowledge?
Can they explain how they could improve their way of working?

Can they explore the natural world around them, making observations and drawing pictures of animals and plants?

Can they name the petals, stem, leaf, bulb, flower, seed, stem and root of a plant? Can they identify and name a range of common plants and trees? Can they recognise deciduous and evergreen trees? Can they name the trunk, branches and root of a tree? Can they describe the parts of a plant (roots, stem, leaves, flowers)?

Can they name the main parts of a flowering plant?

Can they describe what plants need to survive? Can they observe and describe how seeds and bulbs grow into mature plants?

plants?
Can they find out &
describe how plants need
water, light and a suitable
temperature to grow and
stay healthy?

Challenge

Can they describe what plants need to survive and link it to where they are found?
Can they explain that plants grow and reproduce in different ways?

Plants Can they identify and describe the functions of different parts of flowering plants? (roots, stem/trunk, leaves and flowers)? Can they explore the requirement of plants for life and growth (air, light, water, nutrients from soil, and room to grow)? Can they explain how they vary from plant to plant? Can they investigate the way in which water is transported within plants?

transported within plants? Can they explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed

dispersal?
Challenge

Can they classify a range of common plants according to many criteria (environment found, size, climate required, etc.)?

Animals including humans

Can they explain the

Can they explore the natural world around them, making observations and drawing pictures of animals and plants?

of the differences animals? Can they sort photographs of living things and non-living things? Can they identify and name a variety of common animals? (birds, fish, amphibians, reptiles, mammals, invertebrates) Can they describe how an animal is suited to its environment? Can they identify and name a variety of common animals that are carnivores, herbivores and omnivores?

Can they point out some

Can they name the parts of the human body that

Can they describe what animals need to survive? Can they explain that animals grow and reproduce? Can they explain why animals have offspring which grow into adults? Can they describe the life cycle of some living things? (e.g. egg, chick, chicken) Can they explain the basic needs of animals, including humans for survival? (water, food, air) Can they describe why exercise, balanced diet and hygiene are important for humans? Challenge

Can they explain that animals reproduce in different ways?

importance of a nutritionally balanced diet? Can they describe how nutrients, water and oxygen are transported within animals and humans? Can they explain how animals including humans get nutrition from what they eat? Can they identify that animals, including humans, cannot make their own food: they get nutrition from what they eat? Can they describe and explain the skeletal

system of a human?

Can they describe and

explain the muscular

system of a human?

Challenge

name the basic parts of the digestive system in humans? Can they describe the simple functions of the basic parts of the digestive system in humans? Can they identify the simple function of different types of teeth in humans? Can they compare the teeth of herbivores and carnivores? Can they explain what a simple food chain shows? Can they construct and interpret a variety of food chains, identifying producers, predators and prey?

Challenge

Can they explain how

Can they identify and

Can they describe the changes as humans develop to old age? Can they understand that all living things have lifecycles?

Challenge

Can they create a timeline to indicate stages of growth in certain animals, such as frogs and butterflies?
Can they describe the changes experienced in puberty?
Can they draw a timeline to indicate stages in the growth and development of humans?

Can they identify and name the main parts of the human circulatory system and describe the functions of the heart, blood vessels and blood? Can they recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function? Can they describe the ways in which nutrients and water are transported within animals, including humans?

Challenge

Can they describe the pulmonary and systemic circulatory systems?
Can they explore the work of medical pioneers, for example, William Harvey and Galen and recognise how much we have learnt about our bodies?

	they can see?		Can they explain how the	certain living things		Can they compare the
	Can they draw & label		muscular and skeletal	depend on one another to		organ systems of humans
	basic parts of the human body?		systems work together to create movement?	survive?		to other animals?
	Can they identify the		Can they classify living			
	main parts of the human body and link them to		things and non-living things by a number of			
	their senses?		characteristics that they			
	Can they name the parts		have thought of?			
	of an animal's body? Can they name a range					
	of domestic animals?					
	Can they classify animals by what they eat?					
	(carnivore, herbivore,					
	omnivore) Can they compare the					
	bodies of different					
	animals?					
	Challenge					
	Can they begin to classify animals					
	according to a number					
	of given criteria? Can they point out					
	differences between					
	living things and non- living things?					
	Can they name some					
	parts of the human body					
	that cannot be seen? Can they say why certain					
	animals have certain					
	characteristics? Can they name a range					
	of wild animals?					
			Everyday Materials			
	Can they distinguish between an object and	Can they describe the simple physical properties			See properties and changes of materials.	
	the material from which	of a variety of everyday			and ages of materials.	
	it is made? Can they describe	materials? Can they compare and				
	materials using their	group together a variety of				
	senses, using specific	materials based on their simple physical properties?				
	scientific words? Can they explain what	Can they explore how the				
	material objects are	shapes of solid objects can be changed? (squashing,				
	made from? Can they explain why a	bending, twisting,				
	material might be useful	stretching) Can they say which				
	for a specific job? Can they name some	materials are natural and which are man-made?				
	different everyday	Can they find out about				
	materials? e.g. wood, plastic, metal, water and	people who developed useful new materials?				
	rock.	(John Dunlop, Charles				
	Can they sort materials into groups by a given	Macintosh, John McAdam) Can they identify and				
	criteria?	compare a variety of				
	Can they explain how solid shapes can be	everyday materials, including wood, metal,				
	changed by squashing,	plastic, glass, brick, rock,				
	bending, twisting and stretching?	paper, cardboard for particular uses?				
	Can they explore and	Can they explain how				
	experiment using a wide variety of materials	things move on different surfaces?				
	including brick, paper,	Challenge				
	fabric, elastic and foil?	Can they explain how materials are changed by				
	Challenge Can they describe things	heating and cooling?				
	that are similar and	Challenge				
	different between materials?	Can they describe the properties of different				
	Can they explain what	materials using words like,				
	happens to certain materials when they are	transparent or opaque, flexible, etc.?				
	heated, e.g. bread, ice,	, . ,				
	chocolate? Can they explain what					
	happens to certain					
	materials when they are cooled, e.g. jelly, heated					
	chocolate?		Seasonal Changes			
Can they understand some	Can they observe		seusonai Changes			
important processes and	changes across the four seasons?					
changes in the natural world around them,	can they name the four					
including the seasons and	seasons in order?					
changing states of matter.	Can they observe and describe weather					
	associated with the					
	seasons? Can they observe and					
	describe how day length					
	varies?					
	Challenge					
	Can they observe	<u> </u>	<u> </u>			

	features in the environment and explain that these are related to a specific season? Can they observe and talk about changes in the weather? Can they talk about weather variation in different parts of the world?					
Can they know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class;		Can they decide whether something is living, dead or non-living? Can they identify, name and describe a range of different habitats? Can they identify and name a variety of plants and animals in their habitats, including micro-habitats? Can they describe how animals obtain their food from plants and other animals? Can they use a simple food chain? Can they name different sources of food? Challenge Can they name some characteristics of an animal that help it to live in a particular habitat? Can they describe what animals need to survive and link this to their habitats?	iving Things and their Habitat	Can they recognise that living things can be grouped in a variety of ways? Can they explore and use classification keys to identify and group a variety of things in their local environment and wider environment? Can they recognise that environments can change and that this can sometimes pose dangers to living things? Challenge Can they observe their local environment and draw conclusions about life-cycles, e.g. plants in the vegetable garden or flower border? Can they compare the life cycles of plants and animals in their local environment with the life cycles of those around the world, e.g.	process of reproduction in some plants and animals? Challenge Can they explain why classification is important? Can they readily group animals into reptiles, fish, amphibians, birds and mammals? Can they sub divide their original groupings and	Can they describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences including microorganisms, plants and animals? Can they give reasons for classifying plants and animals based on specific characteristics? Challenge Can they research and describe the works of scientists such as Carl Linnaeus?
			Rocks			
			Can they compare and group together different rocks on the basis of their appearance and simple physical properties? Can they describe and explain how different rocks can be useful to us? Can they describe and explain the differences between sedimentary and igneous rocks, considering the way they are formed? Can they describe in simple terms how fossils are formed when things that have lived are trapped within rock? Can they recognise that soils are made from rocks and organic matter? Challenge Can they classify igneous and sedimentary rocks? Can they begin to relate the properties of rocks with their uses?			
			Light Can they recognise that they			Can they recognise that light
			need light in order to see things and that darkness is the absence of light? Can they notice that light is reflected on surfaces? Can they recognise that light from the sun can be dangerous? Can they identify ways to protect their eyes? Can they recognise that shadows are formed when the light from a light source is blocked by an object? Can they find patterns in the way that the size of shadows change? Challenge: Can they understand that light travels in a straight line?			appears to travel in straight lines? Can they 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? Can they 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? Can they use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them? Challenge Can they explain how different colours of light can be created? Can they use and explain how simple optical instruments work? (periscope, telescope, binoculars, mirror,
						magnifying glass, Newton's first reflecting telescope) Can they explore a range of phenomena, including rainbows, colours on soap bubbles, objects looking bent in water and coloured filters.

	Faure and Managets			
	Forces and Magnets Can they compare how things		Can they explain that	
	move on different surfaces?		unsupported objects fall	
	Can they observe that		towards the earth because	
	magnetic forces can be		of the force of gravity acting	
	transmitted without direct		between the earth and the	
	contact?		falling object?	
	Can they observe how some		Can they identify the effects	
	magnets attract or repel each		of air resistance, water	
	other?		resistance and friction that act between moving	
	Can they classify which materials are attracted to		surfaces?	
	magnets and which are not?		Can they recognise that	
	Can they notice that some		some mechanisms, including	
	forces need contact between		levers, pulleys and gears,	
	two objects, but magnetic		allow a smaller force to	
	forces can act at a distance?		have a greater effect?	
	Can they compare and group		Challenge	
	together a variety of everyday		Can they describe and	
	materials on the basis of		explain how motion is	
	whether they are attracted to a magnet?		affected by forces? (including gravitational	
	Can they identify some		attractions, magnetic	
	magnetic materials?		attraction and friction)	
	Can they describe magnets		Can they design very	
	have having two poles (N &		effective parachutes?	
	5)?		Can they work out how	
	Can they predict whether two		water can cause resistance	
	magnets will attract or repel		to floating objects?	
	each other depending on		Can they explore how	
	which poles are facing?		scientists such as Galileo ,	
	Challenge		Galilei and Issac Newron helped to develop the	
	Challenge Can they investigate the		theory of gravitation?	
	strengths of different magnets		Electry of gravitation:	
	and find fair ways to compare			
	them?			
	States of Matter	T		
Can they understand some important processes and		Can they compare and group materials together,		
changes in the natural		according to whether they		
world around them,		are solids, liquids or gases?		
including the seasons and		Can they explain what		
changing states of matter.		happens to materials when		
		they are heated or cooled?		
		Can they measure or		
		research the temperature at		
		which different materials		
		change state in degrees		
		Celsius?		
		Can they use measurements		
		to explain changes to the state of water?		
		Can they identify the part		
		that evaporation and		
		condensation has in the		
		water cycle?		
		Can they associate the rate		
		of evaporation with		
		temperature?		
		Challenge		
		Can they explain what		
		happens over time to		
		materials such as puddles on		
		the playground or washing		
		INDANDINA AN A HALL		
		hanging on a line? Can they relate temperature		
		Can they relate temperature		
		Can they relate temperature to change of state of		
		Can they relate temperature to change of state of		
	Sound	Can they relate temperature to change of state of materials? Can they describe a range of		
	Sound	Can they relate temperature to change of state of materials? Can they describe a range of sounds and explain how they		
	Sound	Can they relate temperature to change of state of materials? Can they describe a range of sounds and explain how they are made?		
	Sound	Can they relate temperature to change of state of materials? Can they describe a range of sounds and explain how they are made? Can they associate some		
	Sound	Can they relate temperature to change of state of materials? Can they describe a range of sounds and explain how they are made? Can they associate some sounds with something		
	Sound	Can they relate temperature to change of state of materials? Can they describe a range of sounds and explain how they are made? Can they associate some sounds with something vibrating?		
	Sound	Can they relate temperature to change of state of materials? Can they describe a range of sounds and explain how they are made? Can they associate some sounds with something vibrating? Can they compare sources		
	Sound	Can they relate temperature to change of state of materials? Can they describe a range of sounds and explain how they are made? Can they associate some sounds with something vibrating?		
	Sound	Can they relate temperature to change of state of materials? Can they describe a range of sounds and explain how they are made? Can they associate some sounds with something vibrating? Can they compare sources of sound and explain how the sounds differ? Can they explain how to		
	Sound	Can they relate temperature to change of state of materials? Can they describe a range of sounds and explain how they are made? Can they associate some sounds with something vibrating? Can they compare sources of sound and explain how the sounds differ? Can they explain how to change a sound		
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			Can they investigate how different materials can affect the pitch and volume of sounds? Challenge Can they explain why sound gets fainter or louder according to the distance? Can they explain how pitch and volume can be changed in a variety of ways? Can they work out which materials give the best insulation for sound?		
		Electricity	Can they identify common		Can they associate the
			appliances that run on electricity? Can they identify and name the basic parts of a simple electric circuit? (cells, wires, bulbs, switches, buzzers) Can they identify whether or not a lamp will light in a simple series circuit based on whether or not the lamp is part of a closed loop with a battery? Can they recognise that a switch opens and closes a circuit and associate this with whether or not a lamp will light in a simple series circuit? Can they recognise some common conductors and insulators, and associate metals with being good conductors? Challenge Can they explain the danger of short circuits? Can they explain what a fuse is? Can they explain how to		brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in a circuit? Can they 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? Can they use recognised symbols when representing a simple circuit in a diagram? Challenge Can they explain why cautions are necessary for working safely with electricity? Can they design and make a functioning circuit for a set of traffic lights, a burglar alarm or some other useful circuit?
	0		make changes in a circuit? Can they explain the impact of changes in a circuit? Can they explain the effect of changing the voltage of a battery?		
(See Everyday Materials	(See Everyday Materials	perties and Changes of Materi	ials	Can they compare and group	
above)	above)			together everyday materials on the basis of their properties including hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets? Can they explain how some materials dissolve in liquid to form a solution? Can they describe how to recover a substance from a solution? Can they use their knowledge of solids, liquids and gases to decide Can they explain how mixtures might be separate including through filtering, sieving, evaporating? Can they give reasons, based on evidence for comparative and fair tests for the particular uses everyday materials, including metals, wood and plastic? Can they describe changes using scientific words? (evaporation, condensation) Can they demonstrate that dissolving, mixing and changes of state are reversible changes? Can they explain that some changes result in the formation of new materials and that this kind of change us not usually reversible, including changes associated with burning and the action of acid bicarbonate of soda? Can they use the terms 'reversible' and 'irreversible' Challenges Can they describe methods for separating mixtures? (filtration, distillation) Can they work out which materials are most effective	

					for keening us warm or for			
					for keeping us warm or for keeping something cold? Can they use their knowledge of materials to suggest ways to classify? (solids, liquids, gases) Can they explore changes that are difficult to reverse, e.g. burning, rusting and reactions such as vinegar with bicarbonate of soda? Can they explore the work of chemists who created new materials, e.g. Spencer Silver (glue on sticky notes) or Ruth			
					Benerito (wrinkle free			
					cotton)?			
			Earth and Space					
					Can they identify and explain			
					the movement of the Earth and other planets relative to the sun in the solar system? Can they describe and explain the movement of the Moon relative to the Earth? Can they describe the sun, earth and moon as approximately spherical bodies? Can they use the idea of the earth's rotation to explain day and night and the apparent movement of the sun across the sky? Challenge Can they begin to understand how older civilisations used the sun to create			
					astronomical clocks, e.g. Stonehenge? Can they explore the work of some scientists? (Ptolemy, Alhazen, Copernicus)			
			Evolution and Inheritance			Can thou recognize that living		
			Non-Negotiables —			Can they 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 they recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents? Can they give reasons why offspring are not identical to each other or to their parents? Can they explain the process of evolution and describe the evidence for this? Challenge Can they talk about the work of Charles Darwin, Mary Anning and Alfred Wallace? Can they explain how some living things adapt to survive in extreme conditions? Can they analyse the advantages and disadvantages of specific adaptations, such as being on two rather than four feet? Can they begin to understand what is meant by DNA?		
			Non-Negotiables –					
		Cor	mposite Curriculum God	als				
Composite curreatum douis								

Autumn Autumn Autumn Autumn Autumn Autumn 1 <u>Autumn Term</u> Museum preparation – write Namina somethina vou Carrvina out an Carrvina out an Double page spread Q: Draw, create and explain experiment to find the experiment to find out How does the digestive can see, hear, touch, about the uses and properties How do humans and circuits. smell, taste in the world best material to use for which materials of rocks. system work? animals produce and can/can't be changed around us? a particular purpose. (Collage/Diagram/2-page develop? Autumn 2 back after Magnets double page spread. spread). Double page spread: Light heating/cooling. Spring Labelling the structure Spring How do materials change Spring Drawing different animal of a fish. Spring states? (In books) Investigate the way in which Double page spread -Circulatory system labelled habitats. Create a senses map to A poster demonstrating water is transported within forces diagram a healthy meal show what they plants. experienced on a trip to Labelled and Summer Spring 2 the beach. annotated. Double page spread – Leanina Tower of Pisa shadow Life cycles 2-page spread. Double page spread: Summer puppet experiment. space & light Explain impact of diet. Diagram of an animal's Labelling the lifecycle of 2 Summer Summer exercise, drugs and lifestyle Desianina an life cycle. on the way your body animals. Summer environment suitable Create a human skeleton in Electricity - Can they functions. for a chosen animal and Summer create a small closed groups. its needs. Name many circuit? (Photos in books) Summer 1 characteristics of an Drawing a picture to Double page spread: animals that help it to live show how a deciduous Pitch/Sound experiment Match animals to habitats in particular habitats. tree changes each and explain how and 2-page spread on Labelled poster of what sound in books. characteristics suit a plant needs to grow. Weather diaries. different environments. Summer 2 Double page spread: Explain evolution and inheritance.

Vocabulary

Questions, answers, equipment, gather, measure, record, results, sort, group, test, explore, observe, compare, describe, similar/ities, different/ces, beaker, pipette, syringe, observe changes over time, notice patterns, secondary sources, hand lenses, egg timers, identify, classify, data.

Body, head, neck, arms, elbows, legs, knees, face, ears, eyes, eyebrows, eyelashes, nose, hair, mouth, teeth, tongue, feet, toes, fingers, nails, ankle, calf, thigh, hips, waist, trunk, chest, shoulders, back, hands, wrist, tail, wing, claw, fin, scales, feathers, fur, beak, senses, hearing, seeing, touching, offspring, life cycles, grow, change, adults, basic needs, water, food, air survival, exercise, food types (fruit and veg, bread, rice, pasta, milk, dairy, foods high in fat and sugar, meat, fish, eggs, beans), hygiene .

Living, dead, never been alive, names of local habitats, pond, woodland, meadow, name micro habitats, under log, stony path, under bushes, suited, basic needs, depend, food, food chain, shelter.

Names of: wild plants, garden pants, flowering plants, trees, leaf, flower, blossom, petal, fruit, berry, root, bulb, seed, trunk, branch, stem, bark, stalk, vegetable seeds, bulbs, water, light, growth, healthy, shoot, seedling.

Season, spring, summer, autumn, winter, weather, hot, warm, cool cold, sunny, cloudy, windy, rainy, snowing, hailing, sleet, frost, fog, mist, icy, rainbow, thunder, lightning, storm, light, dark, day, night.

Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, waterproof, absorbent, tear, rough, smooth, shiny, dull, see through, not see through Suitable/unsuitable, use, object, material, property, wood, plastic, glass, metal water, rock, fabrics, hard, soft, stretchy, flexible, waterproof, absorbent, transparent, translucent, opaque, shape, change, twist, squash, bend, stretch, roll, squeeze.

Previous vocab plus: scientific enquiry changes over time, notice patterns, secondary relationships, independent variable, sources, comparative tests, fair tests, careful, accurate, observations, equipment, gather, measure, record, data, evidence, results, keys, classification keys, scatter graphs, line bar charts, table, results, conclusions, predictions, support, thermometers, enquiry types increase, decrease, identify, classify, order, notice patterns, relationships, appearance, present results, data loggers.

Nutrition, food types, carbohydrates, protein, vitamins and minerals, fat, sugar, fruits and veg, dietary fibre, water, balanced diet, skeleton, muscles, support, protection, movement, names of bones, vertebrate, invertebrate Digestive system, nutrition, mouth, teeth, canine, incisor, molar, pre-molar, saliva, tongue, rip, tear, chew, grind, cut, oesophagus (gullet), stomach, small intestine, large intestine, rectum, anus, carnivore, herbivore, omnivore, producer, consumer, predator, prey, fish, reptile, eggs, live young Organism, microfood chain.

Classification keys, environment, fish, amphibians, reptiles, birds, mammals, vertebrates, invertebrates, names of them, human impact, positive, negative (impact). leaf, flower, blossom, petal, fruit, root, bulb, seed trunk, branch, stem, water, light, air, nutrients, soil, fertiliser, grow, healthy, transported, life cycle, pollination, seed formation, seed dispersal.

States of matter, solid, liquid, gas, air, oxygen, powder, granular/grain, crystals, change state, ice/water/steam, water vapour, heating, cooling, temperature, degrees Celsius, melt, freeze, solidify, melting point, boil, boiling point, evaporation, condensation, water cycle, precipitation, transpiration.

Rock, stone, pebble, boulder, soil, fossils, grains, crystals, texture, absorb water, let water through, marble, chalk, granite, sandstone, slate, sandy soil, clay soil, chalky soil, peat.

Light, light source, darkness, reflect, reflective, mirror, shadow, block, direction, transparent,

Previous vocab plus; notice patterns, dependent variable, controlled variable, accuracy, precision, degree of trust, graphs, causal relationships, support/refute, data loggers, opinion/fact, confidently name scientific enquiry types.

Circulatory system, heart, blood, blood vessels, pumps, oxygen, carbon dioxide, lungs, nutrients, water, diet, exercise, drugs, lifestyle, evolution, suited/suitable, adapted, adaptation, offspring, reproduction, variation, inherit, inheritance, fossils smelling, tasting, smooth, bright, dim, loud, quiet, high, low.

Life cycle, reproduction, sexual, asexual, germination, pollination, seed formation, seed dispersal, pollen, stamen, stigma, plantlets, runners, mammal, amphibian, insect, bird, organism, fungus, mushrooms, classification keys, environment, fish, amphibians, reptiles, birds, ,mammals, vertebrates, invertebrates, name some of these, arachnid, mollusc, insect, crustacean.

Y4 vocabulary plus; rigid, hard, soft, stretchy, flexible, waterproof, absorbent, electrical/thermal conductivity, melting, dissolve, solution, insoluble, solute, solvent, particle, mixture, filtering, sieving, residue, reversible/non reversible changes, new material, burning, rusting.

Light, light source, darkness, reflect, reflective, shadow, block, absorb, direction, transparent, opaque, translucent.

Fall, Earth, gravity, weight, mass, air resistance, water resistance, friction, moving surfaces, mechanisms, levers, pulleys, gears, force, transfers.

Electricity, appliance, device, electrical circuit, complete circuit, circuit diagram, circuit symbol, components, cell, battery, positive, negative, terminal, connection, short circuit, wire, crocodile clip, bulb, bright/dim, switch,

buzzer, volume, motor, conductor, insulator, opaque, translucent. voltage, current, resistance. Sound, sound source, noise, vibration, travel, solid, liquid, gas, pitch, tune, high, low, volume, Earth, planets, sun, solar system, moon, loud, quiet, fainter, muffle, strength of celestial body, spherical, rotation, spin, night vibrations, insulation, instrument, percussion, and day, names of planets, dwarf planet, orbit, strings, bass, woodwind, tuned instrument. geocentric model, heliocentric model, shadow clocks, sundials, astronomical clocks. Force, contact force, non contact force, magnetic force, magnet, strength, bar/ring/button/horseshoe magnets, attract, repel, magnetic material, metal, iron, steel, non magnetic, poles, north/south pole. Electricity, appliance, device, mains, plug, electrical circuit, complete circuit, circuit diagram, circuit symbol, components, cell, battery, positive/negative, connect, connection, short circuit, wire, crocodile clip, bulb, bright/dim, switch, buzzer, motor, faster/slower, conductor, insulator, metal/non metal. Visits/Visitors and websites **Visitors Visits** Websites **Lorton Meadows** https://www.tigtagworld.co.uk/ - subscription paid Secondary Science teachers Local Secondary School Science Department for Explorer Dome Chesil Beach Visitor Centre https://www.stem.org.uk/resources https://www.sciencemuseum.org.uk/home https://www.howtosmile.org/ https://nsdl.oercommons.org/