



Subject Area – Science	Year Group - 1
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Term	Autumn One	Autumn Two	Spring One	Spring Two	Summer One	Summer Two
Knowledge	Everyday materials (Seasonal Changes x 1)	Everyday Materials	Animals, including humans (Seasonal Changes x 1)	Plants (Seasonal Changes x 1)	Animals, including humans (Seasonal Changes x 1)	Animals, including humans continued
Scientific enquiry	Classifying Testing	Observing over time	Classifying and observing	Observation Classifying Testing	Classifying and observing Identifying	
Working scientifically skills Science Ninja skills included: Observation Measurement Recording Equipment	To ask questions To observe closely To gather/record results Answer questions	Ask questions To observe closely Recording data Answer questions	To observe closely Suggest answers to questions To ask scientific questions Recording Use equipment Simple tests	Suggest answers to questions Use equipment Simple test Measuring	To ask and answer scientific questions To observe habitats Use equipment	

Building science capital	School grounds	School grounds Healthy eating - cookery workshop Pizza Express	Science museum Outdoor/ indoor sensory experiences	Trent or Pymmes Park Grow and eat our own food	School dog Trip to the Zoo	
Composite knowledge	Materials are the substances that objects are made from. The different types of materials are wood, plastic, glass, metal, and rock. Different types of materials have different properties.		Eyes are used for sight Skin is used for touch Nose is used for smell Mouth is used for taste Ears are used to hear. Identify the basic parts of the human body	Plants are living things. Plants have a structure. The variety of plants ranges from small flowering plants to big trees	There are 5 groups of animals. Animals have different structures and are classified into mammal/ fish/ amphibian/ reptile/ bird/ insects/	
Component knowledge	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	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	Identify and name our five senses and link it to the relevant body part Name/label the basic parts of the human body (head, neck, arms, elbows legs, knees face hair teeth through	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,	Identify and name common animals- mammal/ fish/ reptile/ amphibian/ bird Identify and name a variety of common animals that are carnivores ,	

	<p>rock</p> <p>Describe the simple physical properties of a variety of everyday materials</p> <p>Compare and group together a variety of everyday materials on the basis of their simple physical properties</p>	<p>Describe the simple physical properties of a variety of everyday materials</p> <p>Compare and group together a variety of everyday materials on the basis of their simple physical properties</p>	<p>songs & rhymes)</p>	<p>including trees</p>	<p>herbivores and omnivores</p> <p>Describe and compare the structure of a variety of common animals (fish , amphibians , reptiles , birds and mammals-inc. pets)</p> <p>Understand how to care for and return minibeasts to their natural environments</p>	
<p>Vocabulary</p>	<p>Waterproof, transparent, flexible, soft, hard, rough, smooth, wood, plastic, glass, metal, water, rock</p>	<p>Float, sink, soft, light, heavy, absorbent, transparent, opaque</p> <p>wood, plastic, glass, metal, water, rock, plastic, paper, sponge, foil, cotton, brick,</p>	<p>Senses, eyes, ears, nose, mouth, touch, smell, taste, hear, see,</p> <p>names of main body parts</p>	<p>Names of common wild and garden plants, names of the evergreen and some of the deciduous trees in the school grounds.</p> <p>Plant, tree, bush, flower, stem, leaves, roots , blossom, petals.</p>	<p>omnivores, carnivores, herbivores</p> <p>Names of common animals including examples of mammals, amphibians, reptiles and birds.</p>	

<p>Explanation or Conclusion sentence starters, support sentences</p>	<p>A material is _____</p> <p>The properties of wood are _____</p> <p>Choose a material and explain its properties to your friend.</p>	<p>A material is _____</p> <p>The properties of cotton are _____</p> <p>A pencil is</p> <p>A desk is....</p> <p>Choose a material which is transparent and explain its properties to your friend.</p>	<p>I use my _____ to _____</p> <p>I use my _____ for _____</p> <p>When I close my eyes I know that _____</p>	<p>A _____ is a tree that stays green all year round.</p> <p>The root of a plant _____</p> <p>The stem of a plant _____</p>	<p>An animals that eats plants is _____</p> <p>A dog is a _____</p> <p>A robin is a _____</p>	
<p>Links to prior knowledge</p>	<p>EYFS</p>	<p>EYFS</p> <p>Summer 1 (seasons)</p>	<p>EYES</p>	<p>EYFS</p> <p>Spring 2</p>	<p>EYFS</p>	<p>EYFS</p> <p>Summer 1 (seasons)</p>
<p>Key knowledge for assessment</p>	<p>Distinguish between an object and the material it is made from</p> <p>Names of some everyday materials: wood, plastic, metal, water and rock.</p>	<p>Uses of different materials – what is the best material</p> <p>How to test a material for durability, flexibility, and waterproof(ness)</p>	<p>Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense</p>	<p>Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees</p> <p>Identify and describe the basic structure of a variety of common flowering plants,</p>	<p>Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals</p> <p>Identify and name a variety of common</p>	

	<p>Understanding of key vocabulary re. properties of materials</p> <p>Group everyday materials by their simple physical properties</p>			<p>including trees</p> <p>Knowing what a plant is, and being able to name some types of plant</p> <p>Being able to describe what a plant needs to grow</p>	<p>animals that are carnivores, herbivores and omnivores</p> <p>Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)</p>	
<p>Key knowledge assessment questions</p>	<p>What is an object made from?</p> <p>An example of something hard is</p> <p>An example of something soft is</p> <p>An example of something shiny is</p> <p>An example of something bendy is</p> <p>Match the objects to the material from</p>	<p>What does waterproof mean?</p> <p>How do you know a material is absorbent?</p> <p>An example of something which is waterproof is?</p> <p>An example of a</p>	<p>Which body part relates to which sense?</p> <p>What are the names of the 5 senses?</p> <p>What do we use to smell?</p> <p>How many senses do we have?</p>	<p>Label the parts of a flower plant</p> <p>Label the parts of a tree (have words to prompt)</p> <p>Draw a picture of a tree in the summer</p> <p>Label the different parts of a plant?(use word prompts)</p> <p>List the names of plants you know</p> <p>List the names of trees</p>	<p>Name a mammal.</p> <p>Name a fish</p> <p>Name a reptile</p> <p>Name an amphibian</p> <p>Name a bird</p> <p>What are the features of mammals, birds, fish, amphibians and reptiles?</p> <p>How are they the</p>	

	<p>which it is made:</p> <p>Window</p> <p>table</p> <p>chair</p> <p>wall fork</p> <p>metal plastic glass</p> <p>wood rock</p> <p>Which of these materials are waterproof glass, plastic, wood paper cardboard</p> <p>Which properties-relate to the materials</p> <p>wood plastic, glass, foil paper</p> <p>bendy or stiff</p> <p>hard or soft</p> <p>Rough or smooth</p> <p>opaque transparent</p> <p>Absorbent non</p>	<p>material which is absorbent is</p>	<p>Name some smells that you like.</p> <p>Name some smells that you don't like.</p> <p>Why does mouldy food smell bad?</p> <p>How do our senses keep us safe? (Too hot/ too cold</p> <p>What do we use to see?</p> <p>What do we use to hear?</p> <p>What do we use to feel?</p> <p>What do we use to taste?</p>	<p>you know</p>	<p>same and different?</p> <p>_____ is a mammal because_____</p> <p>True/ false a shark is a fish?</p> <p>What does omnivore mean? Give an example</p> <p>What does carnivore mean ? Give an example</p> <p>What does herbivore mean? Give an example</p>	
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	<p>absorbent.</p> <p>Using objects made of the following: of wood, metal plastic glass and rock ask the pupils to group if they are transparent or opaque</p>					
Cross-curricular links	<p>DT: Design a lever and slider using a range of materials</p> <p>Geography</p> <p>English: 10 things I can do to save my world. Discuss which objects can be recycled with focus on materials.</p>	<p>Geography: Identify human features in the local area and discuss what materials they are made from.</p> <p>English: Our very own dog. Discuss materials used to make a dog shelter.</p>	<p>DT: Draw outline of the human body</p> <p>Literacy: Man on the moon. Understand which senses astronauts use when exploring space.</p>	<p>DT: make cardboard/paper/wool plant models</p> <p>English: The emperor's egg</p>	<p>DT: clay or plasticine snakes</p> <p>Maths- measuring</p> <p>Geography:- Habitats</p> <p>Story books: Our Very Own Dog (PoR)</p> <p>Maths - Sorting with Venn diagrams</p>	

Subject Area – Science

Year Group – 2



Term	Autumn One	Autumn Two	Spring One	Spring Two	Summer One	Summer Two
Knowledge	Animals, including humans	Living things and their habitats	Living things and their habitats	Uses of everyday materials	Uses of everyday materials continued Plants	Plants continued
Scientific enquiry	Researching Observing	Pattern seeking Researching classifying	Pattern seeking Researching	Observing Classifying	Observing over time	
Working scientifically skills Science Ninja skills included: Observation, Measurement, Recording Equipment	To ask scientific questions To plan an enquiry To observe closely To measure accurately To gather/ record results	To ask scientific questions To plan an enquiry To observe closely To measure accurately To gather/ record results	To ask scientific questions To plan an enquiry To observe closely To measure accurately To gather/ record results	To ask scientific questions To observe closely To measure accurately To gather/ record results	To ask scientific questions To plan an enquiry To observe closely To measure accurately To gather/ record results	

<p>Building science capital</p>	<p>Sports health School dog</p>	<p>Climate change Environmental rights and issues Conservation</p>	<p>Climate change Environmental rights and issues Conservation Trip to Pymes Park wetlands for habitats</p>	<p>School building and items Science walk and field trip around local area</p>	<p>School gardens Pymmes park</p>	<p>World Seed bank Kew Gardens</p>
<p>Composite knowledge</p>	<p>What animals including humans need in order to survive and stay healthy Notice that animals, including humans, have offspring which grow into adult</p>	<p>The differences between living things, things that are dead and things that have never been alive Where different animals live and why</p>	<p>Where do different animals live and why How and where do animals find their food</p>	<p>Materials have different properties which makes them suitable for certain uses and purposes, also that materials can be used for more than one thing or purpose Some solid material can be changed by human force</p>	<p>What a plant needs to grow and survive The main parts of a plant What plants need to grow The different parts of a plant Learn how to plant a seed Plants need sunlight and air to grow What is needed for healthy plant growth The difference between young plants</p>	

					and mature plants The function of each part of the plant seed's change and growth and change overtime	
Component knowledge	<p>Notice that animals, including humans, have offspring which grow into adults</p> <p>Find out about and describe the basic needs of animals, including humans, for survival (water, food and air)</p> <p>Describe the importance for humans of exercise, eating the right</p>	<p>Explore and compare the differences between things that are living, dead, and things that have never been alive</p> <p>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</p> <p>Identify and name a</p>	<p>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</p> <p>Identify and name a variety of plants and animals in their habitats, including microhabitats</p> <p>Describe how animals obtain their food from plants and other animals, using the idea</p>	<p>Identify, test and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses or circumstances</p> <p>Classify the uses of different everyday materials.</p> <p>Use observations, ask questions and test materials to answer simple questions</p> <p>Investigate how the</p>	<p>Observe and describe how seeds and bulbs grow into mature plants</p> <p>Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy</p>	

	amounts of different types of food, and hygiene	variety of plants and animals in their habitats, including microhabitats	of a simple food chain, and identify and name different sources of food	shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching		
Vocabulary	survival, water, air, food, adult, baby, offspring,, hygiene, balanced diet, exercise	living, dead, habitat, energy, food chain, predator, prey, woodland,pPond, desert, microhabitat	living, dead, habitat, energy, food chain, predator, prey, woodland, pond, desert	hard, soft, stretchy, stiff, shiny, dull, rough, smooth, bendy, waterproof, absorbent, opaque, transparent, brick, paper, fabrics, squashing, bending, twisting, stretching elastic, foil, rubber, plastic	seeds, bulbs, water, light, temperature, growth, healthy, unhealthy	
Explanation or Conclusion sentence starters, support sentences	Humans need key things to stay alive... Human grow and change over time because ... Important things	In a food chain there needs a ... I can tell something is living because... I can tell that something is dead as	There are lots of different habitats which are... A habitat has living things in it which are... Some animals need to live in a water	This material is hard or soft becaus...e This material is the most suitable for a raincoat because... Wood is hard is good for making pencils... I know that this object is made from this	Plants need _____, _____, _____to stay healthy. Plants do not grow well in dark places because They need water, sunlight and nutrients from the soil to stay alive.	

	<p>which Humans need for a healthy life are...</p>	<p>it...</p> <p>The main differences or similarities are...</p>	<p>because...</p> <p>Other animals live in a woodland habitat because...</p> <p>These habitats differ because...</p>	<p>material because...</p> <p>This material is opaque because...</p> <p>I know this material is translucent as</p> <p>The material which is... the most absorbent is...</p> <p>The material which is waterproof is ...</p>		
<p>Links to prior knowledge</p>	<p>EYFS - Shows care and concern for living things and the environment</p> <p>Year 1 – Animals including Humans</p>	<p>EYFS - Shows care and concern for living things and the environment</p> <p>Year 1 - N/A</p>	<p>EYFS - Shows care and concern for living things and the environment</p> <p>Year 1 – N/A</p>	<p>EYFS - Beginning to be interested in and describe the texture of things.</p> <p>Manipulates materials to achieve a planned effect</p> <p>Year 1- Everyday materials</p>	<p>EYFS - Beginning to be interested in and describe the texture of things.</p> <p>Manipulates materials to achieve a planned effect</p> <p>Year 1- Everyday materials</p>	

<p>Key knowledge for assessment</p>	<p>Identify what humans need for survival</p> <p>Explain the life cycles of a living thing</p> <p>Explain the effect of human actions on our body (exercise/healthy eating)</p>	<p>Explain the difference between living, dead and never alive</p> <p>Explain why animals choose specific locations to live</p> <p>Identify a variety of habit types</p>	<p>Natural food sources that can be found</p> <p>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</p> <p>Identify and name a variety of plants and animals in their habitats, including microhabitats</p> <p>Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food</p>	<p>Identify which materials are best suited for certain purposes (parts of a building structure e.g. glass for windows)</p> <p>To compare and test materials suitability and describe their different uses</p> <p>To identify the most suitable materials for a purpose based on their properties and explain my choices</p> <p>e.g. raincoats, buildings (school), robot (ties in with Robot and the blue bird)</p>	<p>Identify what plants need in order to grow and survive</p> <p>Explain the effect of the environment on plant growth</p>	
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Key knowledge assessment questions	How do animals and humans change over time?	What does alive/ dead// never been alive mean? Can you give an example?	What are the basic needs for survival?	Thinking of our school building /here is a diagram of a house. Which materials would best be suited to make the following parts of the house from:	What does a plant need to grow and survive?	
	What are the key stages of the human life cycle?	What different habitats are there? why?	Why is this(woodland, ocean, trees, the arctic snow and ice) habitat suitable for?	Windows	What are the main parts of a plant?	
	What are the key stages of an animal's life cycle?	What key things do living things need to stay alive?	What different habitats are there?	Window frame	What do plants need to grow?	
	Why do we need good hygiene?	What plants grow in a ___habitat?	Why do habitats need minibeasts?	Door	What are the different parts of a plant?	
	Why is a healthy diet important?	What is a habitat?	Which natural food sources can be found?	Fence	How would you plant a seed?	
	Why do we exercise?	What is a microhabitat?		Roof	Why do plants need sunlight and air?	
	Is ice cream a healthy food?	Where would a spider live? Why?		Structure (outside)	How do plants grow healthy?	
		What habitat is the most suitable for a polar bear? Why?		Chimney	How do young plants differ from mature plants?	
				What materials are water bottles usually made from?	What do seeds and bulbs need to grow(not light) ?	
				Are water bottles normally made from paper? Explain your reasoning	What does each part of the plant do?	
			Would a raincoat made of paper be	How do seeds grow		

	<p>Explain why.</p> <p>What foods would a balanced meal have? Explain.</p>			<p>suitable to go out in the rain? Explain why</p> <p>Can you name any objects or materials that can change shape? Explain how you know this</p> <p>Which materials are suitable to make a robot or school?</p>	<p>and change overtime?</p>	
<p>Cross-curricular links</p>	<p>RSE</p> <p>Literacy</p>	<p>Geography</p> <p>Literacy</p>	<p>Geography</p> <p>Literacy</p> <p>Diorama- D&T</p>	<p>DT: Make a rain coat for Teddy</p>	<p>Literacy</p>	

Subject Area – Science

Year Group – 3



Term	Autumn One	Autumn Two	Spring One	Spring Two	Summer 1	Summer 2
Knowledge	Light	Animals, including humans	Force and magnets (over 9 lessons so extends into SP2)	Forces and magnets	Rocks	Plants
Scientific enquiry	Fair testing Researching Classifying	Researching Classifying	Observation classifying Fair testing		Classifying Researching Fair testing	Researching Classifying Fair Testing
Working scientifically skills Science Ninja skills included: Observation, Measurement, Recording Equipment	Observe closely Predictions Ask scientific questions Draw conclusions	Ask scientific questions Observe closely	Observe closely Predictions Ask scientific questions Draw conclusions	Predictions Gather/record results Ask scientific questions Comparing Draw conclusions Interpret results	Observe closely Predictions Gather/record results Ask scientific questions Comparing	Observe closely Predictions Gather/record results Ask scientific questions Comparing Draw conclusions
Building science capital	Epping forest	School grounds	School grounds	Science museum Local area	Natural History museum	Science museum Pymmes park or Trent Park
Composite knowledge	Know and understand what light is and identify sources of light How light travels How too much sunlight can be dangerous How humans see things Formation of shadows	Know what a mammal is Know the differences between humans and other animals Know the difference between endoskeleton and exoskeletons The functions of the skeletons The different food groups Know what a balanced		Know what forces are and identify different types of forces (pushes, pulls and non contact forces i.e. magnetism) How some materials are magnetic and others non-magnetic Know that magnets attract and repel depending on what poles are facing one another (like poles repel, opposites attract)	The different types of rocks (igneous, sedimentary, metamorphic) How different types of rocks are formed Properties of rocks (durable, hard, soft density, permeable) Uses of rocks in our everyday lives. What erosion is	Identify parts of a flower and their functions What a plant needs to grow How water travels in a plant The different stages of the life cycle of a plant (including pollination and the different types of seed dispersal)

	<p>Why some objects are considered light sources when they are not</p> <p>How to keep ourselves safe from too much UV light</p>	<p>diet means</p> <p>The main bones in the human skeleton.</p> <p>How muscles work to create movement</p>			<p>How soil is made</p> <p>Formation of fossils</p>	<p>The different types of plants</p> <p>Uses of plants in everyday life</p> <p>The needs of plants to grow successfully.</p>
Component knowledge	<p>Explain how we are able to see objects.</p> <p>Recognise that light appears to travel in straight lines</p> <p>Explain why light is reflected from some surfaces and not others.</p> <p>Explain why light from the sun can be dangerous</p> <p>Explain and describe how we can protect ourselves from the sun</p> <p>Describe and explain how shadows are formed</p> <p>Describe the difference between opaque, translucent and transparent</p> <p>Identify patterns in the way that the size of shadows changes size in relation to position</p>	<p>Understand the different foods humans need and that they cannot make their own food; we get nutrition from what we eat.</p> <p>Describe and explain a balanced diet</p> <p>Plan and carry out an investigation of the content of sugar in drinks</p> <p>Explain the functions of the human skeleton (support, protection, movement)</p> <p>Describe the differences between endoskeletons and exoskeletons.</p> <p>Identify that humans and some other animals have skeletons and muscles for support, protection and movement</p> <p>Explain how muscles work (in antagonistic pairs)</p>	<p>Identify pushes and pulls</p> <p>The difference between contact and non contact force</p> <p>Explain that magnets have two poles (north and south)</p> <p>Identify which materials generate the most friction</p> <p>Compare magnetic and non magnetic materials on the basis of whether they are attracted to a magnet</p> <p>Explain why some materials are magnetic and not others</p> <p>Observe how magnets attract or repel each other and attract some materials and not others</p> <p>Compare the strength of magnets</p>	<p>Plan and carry out an investigation based on forces and magnetism</p> <p>Explain why magnets repel and attract (like poles repel, opposite attract)</p> <p>Use a compass correctly</p> <p>Compare how objects move on different surfaces</p>	<p>Compare different types of rocks based on their appearance and simple physical properties</p> <p>Group rocks based on their properties</p> <p>Describe how fossils are formed when things that have died become trapped within rock</p> <p>Describe how soil is made</p> <p>Explain the four processes involved in soil formation (addition, losses, translocations, transportations)</p> <p>Recognise that soils are made from rocks and organic matter</p>	<p>Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers</p> <p>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</p> <p>Plan and carry out an investigation on plant growth</p> <p>Investigate the way in which water is transported within plants</p> <p>Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal</p>

	of the light source					
Vocabulary	light, shadows, mirror, reflective, dark, reflection, transparent, translucent, opaque	antagonist, muscles, food groups, carbohydrates, fats, proteins, skeleton, endoskeleton, exoskeleton, (names of the different parts of the skeleton e.g. skull, femur)	magnetic, force, contact, attract, repel, poles, pull, push, gravity. magnetism	magnetic, non contact force, contact, attract, repel, friction, poles, pull, push, gravity.	permeable, impermeable, durable, metamorphic, igneous, sedimentary, lava/magma, Fossils, soils, sandstone, granite, marble, pumice	air, light, water, nutrients, soil, reproduction, transportation, dispersal, pollination, flower, seed dispersal
Explanation or Conclusion sentence starters, support sentences	My prediction is that light travels My hypothesis is the tin foil will I found out that the paper around the shape had lightened whereas	The names of the different food groups are Examples of food that contains carbohydrates are A good balanced diet consists of The three main function of our skeleton are ____ Muscles help us to ____ Muscles can be contracted, ____ and ____	The different types of forces are Examples of forces are to push, Materials can be magnetic and ----- Magnetic force is an _____ force.	Magnets have two poles they are called and A compass always points to the _____ North pole and south pole _____ Opposite poles always Metals that attract magnets are	My hypothesis is that chalk is p..... Rocks have different types of properties, they are permeable, and permeable allows We found out that chalk, clay and sandstone are Natural rocks are : granite ,..... Human made rocks are, The three different types of rocks are sedimentary, and Fossils are the _____ remains of an _____ or _____ that were once living.	Names of parts of plants are The functions of a plant are I predict plants need ----,----- to grow well. Plants need certain conditions to grow well, they are The function of a stem is to
Links to prior knowledge	Year 2 Everyday materials Reflective materials, transparent, opaque	Year 1 Identify, name and draw the basic parts of the human body. Know what	Year 1 Distinguish between an object and a material. Identify everyday	Year 1 Distinguish between an object and a material. Identify everyday materials.	Year 2 Everyday materials Identify and compare the suitability of a	Year 1 Identify wild and garden plants Identify and describe

		<p>part is associated with each sense</p> <p>Year 2</p> <p>Animals have offspring that grow into adults.</p> <p>Basic needs of animals for survival.</p> <p>Importance for humans of exercise, correct diet and hygiene.</p>	<p>materials.</p> <p>Describe the simple physical properties of everyday materials</p> <p>Compare and group together a variety of everyday material</p> <p>Year 2 Everyday materials</p> <p>Identify and compare the suitability of a variety of materials for certain uses.</p>	<p>Describe the simple physical properties of everyday materials</p> <p>Compare and group together a variety of everyday materials</p> <p>Year 2</p> <p>Everyday materials</p> <p>Identify and compare the suitability of a variety of materials for certain uses.</p>	<p>variety of materials for certain uses.</p> <p>How the shapes of solid objects of certain materials could be changed by squashing etc</p>	<p>structure of plants and trees</p> <p>Year 2</p> <p>Observe and describe how seeds grow into plants</p> <p>Describe how plants grow and stay healthy</p>
Key knowledge for assessment	<p>Light is a form of energy</p> <p>The moon is not a source of light, the light from the sun reflects on the moon</p> <p>Light travels in straight lines</p> <p>Opaque objects block light</p> <p>Translucent objects let some light through</p> <p>Transparent objects let all light through</p> <p>Light is reflected off shiny surfaces but not dull ones</p> <p>We see light because the light bounces off objects, being reflected into our eyes</p> <p>Shadows are formed in the absence of light</p>	<p>A mammal is a warm blooded vertebrate.</p> <p>An endoskeleton is on the inside and an exoskeleton is on the outside</p> <p>Some animals do not have either skeleton e.g. an earthworm</p> <p>Vertebrates have a backbone, invertebrates do not</p> <p>The functions of skeletons (support, movement, protection)</p> <p>The different food groups (carbohydrates, fats, proteins, dairy)</p> <p>Examples of food from the different groups e.g. pasta is a carbohydrate</p> <p>A balanced diet - eating a wide variety of foods in moderation and in the right proportions</p>	<p>A force is a push or pull that changes the speed, space or direction of an object or causes an object to stop.</p> <p>The difference between contact and non contact force</p> <p>Like poles repel and opposite poles attract.</p> <p>A magnet has a north and a south pole.</p> <p>Use experimental data to identify which is the strongest and weakest magnet</p>		<p>Describe different types of rocks based on their appearance (smooth, hard, crumbly, rough).</p> <p>The three different types of rocks: Sedimentary, Igneous and Metamorphic.</p> <p>Understand the difference between human made and natural rocks (give examples). Manmade is created by humans and natural rocks are formed and found naturally in our environment.</p> <p>Investigate properties of rocks - test whether they are permeable, durable and density.</p> <p>Recognise soil is made up of rocks and organic matter (living</p>	<p>Parts of the plantL ovary, stigma, petals, leaves, flowers, stem</p> <p>Different parts of the flowering plants and their job.</p> <p>To explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow)</p> <p>Investigate what plants need to grow well.</p> <p>Record findings using simple scientific language, drawings, labelled diagrams or tables by observing and recording plant growth.</p> <p>Investigate how water is transported within plants.</p>

		<p>The main bones in the human body e.g. (skull, ribs, tibia, fibia, femur, phalanges)</p> <p>How muscles move - they work in pairs, when one contracts, the other repels. They work in antagonistic pairs with a focus on the bicep, tricep example</p>			<p>things - plants and animals).</p> <p>Explain how soil is formed (the processes of soil formation) Air - water - gases ..(addition, losses, transportation, translocation) Describe in simple terms how fossils are formed from when living things are trapped within rocks trapped</p>	<p>Name the different parts of a flower and explain their role in pollination and fertilisation.</p> <p>Understand and order the stages of the life cycle of a flowering plant.</p>
Key knowledge assessment questions	<p>Can you name examples of sources of light?</p> <p>How does light travel?</p> <p>What does transparent, translucent and opaque mean?</p> <p>What types of surfaces reflect light?</p> <p>Why is too much sun dangerous for us?</p> <p>How do we see?</p> <p>What patterns do you notice about the shadow when you move a torch closer to the object?</p> <p>When do shadows</p>	<p>Describe what a mammal is</p> <p>What is the difference between endoskeleton and exoskeleton?</p> <p>What are the advantages and disadvantages of endoskeletons?</p> <p>What are the advantages and disadvantages of exoskeletons?</p> <p>What are the functions of skeletons?</p> <p>What are the different food groups?</p> <p>Name examples of food from the different groups?</p> <p>What is a balanced diet?</p>	<p>What is a non contact and contact force ? Is blowing a pencil across a desk non contact or contact force? What are the effects of a force on an object?</p> <p>What is the difference in how a toy car moves down a rough or smooth surface? Identify a push and a pull.</p> <p>Identify the source of a push or pull.</p> <p>What metals can magnets pick up?</p> <p>Will two magnets facing like poles attract or repel?</p> <p>Will two magnets of opposite poles attract or repel?</p>		<p>What are the different types of rocks?</p> <p>How are igneous/sedimentary/metamorphic rocks formed?</p> <p>What are the properties of rocks?</p> <p>What are the everyday uses of rocks?</p> <p>Identify igneous/sedimentary/metamorphic rocks.</p> <p>How are fossils formed? What are the three different types of fossils?</p>	<p>Name part of plants?</p> <p>What are the functions of plants?</p> <p>What do plants need to grow?</p> <p>What is the function of a stem?</p> <p>How does water travel in a plant?</p> <p>How are seeds dispersed?</p> <p>What is the life cycle of a plant?</p>

	form?	<p>What are the main bones in the human body?</p> <p>How do our muscles help us to move?</p>				
Cross-curricular links	Reading comprehension	<p>Literacy- information fact sheet</p> <p>PE - Checking pulse count before and after exercise</p> <p>Maths- Venn diagram- sorting food groups</p> <p>Measuring in cm (link to investigation correlation between shoe size and height)</p>		<p>Reading comprehension (Palaeontology)</p> <p>Reading- case studies - West Runton Mammoth)</p>	Geography	<p>Maths- Take daily measurements of plant growth.</p> <p>DT: Making mini greenhouses.</p> <p>Maths - Measuring of resources required to make the greenhouse</p>

Subject Area – Science

Year Group – 4



Term	Autumn One	Autumn Two	Spring One	Spring Two	Summer 1	Summer 2
Topic	Animals, including Humans	States of Matter	Sound	Electricity	Living things and their habitats (1)	Living things and their habitats (2)
Scientific enquiry	Comparative/fair testing	Classifying	Researching	Pattern seeking	Observing over time Pattern seeking Researching	Observing over time Pattern seeking Researching
Working scientifically skills Science Ninja skills included: Observation, Measurement	To observe closely. To measure accurately.	To ask scientific questions. To evaluate an investigation. To draw conclusions. To use appropriate equipment correctly and safely.	To plan an enquiry. To make a prediction. To evaluate an investigation. To draw conclusions. To use appropriate equipment correctly	To gather/record results. To present results. To interpret results. To use appropriate equipment correctly and safely.	To observe closely. To explore classification keys. To analyse and record. To draw conclusions. To evaluate an investigation. To use appropriate equipment correctly and safely.	To observe closely. To measure accurately. To draw conclusions. To measure accurately. To analyse and record.

Recording Equipment			and safely.			
Building science capital	School dog Animals in the local environment	Healthy eating cookery workshop shop PE	Healthy eating workshop Musicians	Local electricians Parent visit	Epping Forest Science Museum	Pymmes or Trent park
Composite knowledge	The function of the human digestive system Types and functions of human teeth How to interpret and construct food chains	Recognise materials as solids, liquids and gases How materials change state The importance of evaporation and condensation in the water cycle	How sounds are made How sound travels Patterns and features associated with pitch and volume of sound The connection between distance and sound	Common appliances run on electricity How a simple series electrical circuit is made using basic parts Complete and incomplete circuits using batteries How light switches work in a simple series circuit Conductors and insulators - metals are good conductors.	How living things are grouped What are classification keys, why they are used and how to use them Environment and dangers of change	The impact humans have on the environment The impact that changes in the environment can have on living things
Component	Describe the	Compare and group	Identify how sounds	Identify common	Recognise that living things can be	Recognise that environments can

knowledge	simple functions of the basic parts of the digestive system in humans	materials together, according to whether they are solids, liquids or gases	are made, associating some of them with something vibrating	appliances that run on electricity	grouped in a variety of ways	change and that this can sometimes pose dangers to living things
	Identify the different types of teeth in humans and their simple functions	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)	Recognise that vibrations from sounds travel through a medium to the ear	Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers	Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment	Understand that changes can happen naturally and can also be proposed by humans (man-made)
	Construct and interpret a variety of food chains, identifying producers, predators and prey	Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature	Find patterns between the pitch of a sound and features of the object that produced it	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	Identify the characteristics of living things	Be aware that changes to the environment can have both positive and negative effects
			Find patterns between the volume of a sound and the strength of the vibrations that produced it	Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit		Understand ways to have a positive impact on the environment
			Recognise that sounds get fainter as the distance from the sound source			

			increases	Recognise some common conductors and insulators, and associate metals with being good conductors		
Vocabulary	mouth, tongue, teeth, oesophagus, stomach, small intestine, large intestine, herbivore, carnivore, canine, incisor, molar	solid, liquid, gas, evaporation, condensation, particles, temperature, freezing, heating	volume, vibration, wave, pitch, tone, speaker	cells, wires, bulbs, switches, buzzers, battery, circuit, series, conductors, insulators	organisms, life processes, vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, snails, slugs, worms, spiders, insects, environment, habitats	environmental changes, impact, adaptations, natural changes, nocturnal, survival, hibernate.
Explanation or Conclusion sentence starters, support sentences	<p>There are ... different types of teeth. They are called ...</p> <p>The digestive system is important because ...</p> <p>The role of the oesophagus is to ...</p>	<p>Materials in a state keep their shape unless a force is applied to them.</p> <p>..... do not have to be hard. They can be squashy or soft.</p> <p>Materials in a state take the shape of the container they</p>	<p>Sounds are made when an object</p> <p>We hear sounds when the travel from a source through a medium to our</p> <p>Sounds get fainter when you are from the source of</p>	<p>Electricity flows through to travel from a power source to an</p> <p>A power source is a</p> <p>The two types of electrical current that we use to power our appliances are</p>	<p>All living share these</p> <p>That is how we know they are</p> <p>The life processes are</p> <p>All living things can be split into groups, which are and</p> <p>..... keys are used</p>	<p>Environments can change or they can be caused by</p> <p>Most natural changes happen and does not have an impact on animals because animals can to survive the changes.</p> <p>To cope with the season animals grow thicker fur, store</p>

	<p>The small intestine, a long, narrow, folded or coiled tube extends from the ... to the ...</p> <p>In the large intestine, water is absorbed and the remaining waste material is stored as ... before being removed by ...</p> <p>An animal who hunts other animals for food is called ...</p> <p>Animals who are hunted and eaten by other animals are called ...</p>	<p>are in.</p> <p>..... can flow or be poured.</p> <p>The state of..... can spread out to completely fill the container or room they are in.</p> <p>Materials are made of very tiny.....</p> <p>When a liquid turns into a solid it is called.....</p> <p>.</p> <p>When a solid turns into a liquid it is called</p>	<p>the sound.</p> <p>Sound is a form of</p> <p>The more energy that is put into creating a sound, thethe sound that is made</p>	<p>..... and</p> <p>To make a circuit you need</p> <p>...is a good conductor.</p>	<p>to animals.</p> <p>A.....is a place where..... andlive</p> <p>Threats to habitats are.....</p>	<p>food or hibernate.</p> <p>The 5 different changes that have a negative impact on the environment are.....</p>
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	 is the process of a liquid changing into a gas				
Links to prior knowledge	<p>Year 1</p> <p>Identify, name and draw the basic parts of the human body. Know what part is associated with each sense</p> <p>Year 2</p> <p>Animals have offspring that grow into adults.</p> <p>Basic needs of animals for survival.</p> <p>Importance for humans of exercise, correct diet and hygiene</p> <p>Year3</p>	<p>Year 1</p> <p>Distinguish between an object and a material.</p> <p>Identify everyday materials.</p> <p>Describe the simple physical properties of everyday materials</p> <p>Compare and group together a variety of everyday materials</p> <p>Year 2</p> <p>Everyday materials</p> <p>Identify and compare the suitability of a variety of materials for certain uses</p>	NA	<p>Year 3 Light</p> <p>Recognise need light to see</p> <p>Notice how light is reflected from surfaces</p>	<p>Year 1</p> <p>Identify wild and garden plants</p> <p>Identify and describe structure of plants and trees</p> <p>Year 2</p> <p>Observe and describe how seeds grow into plants</p> <p>Describe how plants grow and stay healthy</p> <p>Year 3</p> <p>Functions of the parts of plants</p> <p>Explore the needs of different plants for life and growth</p> <p>Investigate the way water is transported within plants</p> <p>Life cycle of plant</p>	<p>Year 1</p> <p>Identify wild and garden plants</p> <p>Identify and describe structure of plants and trees</p> <p>Year 2</p> <p>Observe and describe how seeds grow into plants</p> <p>Describe how plants grow and stay healthy</p> <p>Year 3</p> <p>Functions of the parts of plants</p> <p>Explore the needs of different plants for life and growth</p> <p>Investigate the way water is transported within plants</p> <p>Life cycle of plants</p>

	<p>Animals need the right types and amount of nutrition, they get nutrition from what they eat. Identify the humans and some animals have skeletons and muscles for support and movement</p>	<p>Year 3</p> <p>Compare and grouping rocks on basis of appearance and properties</p> <p>Formation of fossils</p> <p>Recognise soils are made from rocks and organic matter</p>				
<p>Key knowledge for assessment</p>	<p>Name and explain the functions of the human teeth</p> <p>Name and describe the function of the digestive system</p> <p>What living things make a food chain and the impact of a break in a food chain</p>	<p>Describe solids, liquids and gases and their properties</p> <p>Describe what happens to the different materials when they are heated or cooled</p> <p>Explain how water evaporates and how the rate of temperature affects the process of evaporation</p>	<p>Describe how sound can travel through different mediums</p> <p>Identify the parts and explain the function of the human ear</p> <p>Explain how vibrations work and their impact on pitch and volume</p>	<p>Name common appliances that run on electricity</p> <p>How a simple series electrical circuit is made using basic parts</p> <p>Complete and incomplete circuits using batteries</p> <p>How light switches work in a simple series</p>	<p>Name the different groups of living things</p> <p>Recognise that living things can be grouped in a variety of ways</p> <p>Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment</p> <p>Identify the characteristics of living things</p>	<p>Natural changes</p> <p>Human changes</p> <p>How animals adapt to their changing environment.</p> <p>Positive and negative impact on living things</p>

				<p>circuit</p> <p>Conductors and insulators - metals are good conductors. Name the parts of a simple circuit</p> <p>How circuits work and the function of a switch</p> <p>Know how to make a circuit that can light a bulb</p>	The environment changing and dangers to living things	
Key Knowledge assessment questions	<p>How does the human digestive system work?</p> <p>Label the parts of the human digestive system</p> <p>Label all the human teeth.</p> <p>What are the functions of human</p>	<p>Give an example of a solid, liquid and a gas.</p> <p>Describe the properties of solids, liquids and gases.</p> <p>How do solids change into liquids and vice versa.</p>	<p>How are sounds made?</p> <p>How does sound travel?</p> <p>How does the human ear work?</p> <p>What happens to the</p>	<p>Name some appliances that run on electricity</p> <p>What are the names of the parts that are needed to construct a working circuit?</p> <p>In a circuit- how do you make a lamp light ?</p> <p>What is the difference between a complete</p>	<p>What are the seven life processes?</p> <p>What is used to group different types of animals?</p> <p>What are the two different types of animals?</p> <p>What are the characteristics of</p>	<p>How does the environment change over time naturally?</p> <p>How are humans responsible for the negative impact on living things and their habitats?</p> <p>What adaptations do animals make to survive natural and regular changes to the</p>

	<p>teeth?</p> <p>Explain why a herbivore would have different teeth to a carnivore</p> <p>How does the food chain work?</p> <p>Which plant and animals are the producer, predator and prey in this food chain?</p>	<p>Describe what happens to the different materials when they are heated or cooled.</p> <p>Explain how water evaporates and how the rate of temperature affects the process of evaporation</p> <p>What is the water cycle and how does it work?</p>	<p>volume of sound when you increase the distance from source to the ear?</p>	<p>and incomplete circuit?</p> <p>How does a switch work?</p> <p>What are good conductors of electricity?</p> <p>What does not conduct electricity?</p>	<p>invertebrates and vertebrates?</p> <p>What are the different groups of living things in my environment?</p> <p>How can habitats be affected by our local environment?</p>	<p>environment?</p>
<p>Cross-curricular links</p>		<p>Maths</p> <p>Weighing and recording the weight of an empty and blown up balloon (carbon dioxide)</p> <p>Weighing and recording a solid (piece of chocolate) and then comparing it to the weight when the solid is turned into</p>	<p>D&T</p> <p>Making a string telephone</p>	<p>Maths</p> <p>Venn diagram. Sorting items into battery operated and electrical groups</p> <p>D&T</p> <p>Designing and constructing our own toddler's nightlight</p>	<p>Literacy</p> <p>Big Write - Newspaper report on deforestation</p> <p>Persuasive poster about saving the rainforest</p> <p>Core Book - The Explorer</p>	<p>Literacy</p> <p>Big Write - Research and write a report on recent changes in the environment and the impact on living things</p> <p>Core Book - The Explorer</p>

		a liquid (when melted)				
		Recording the different temperatures needed to turn a solid into a liquid and vice versa				

Subject Area – Science

Year Group - 5



Term	Autumn One	Autumn Two	Spring One	Spring Two	Summer1	Summer 2
Knowledge	Earth and space	Forces	Properties and changes of materials	Properties and changes of materials	Living things and their habitats	Animals, including humans
Scientific enquiry	Observing over time	Comparative/fair testing	Observing over time	CONTINUED	Classifying	Pattern seeking
<i>observing over time</i>	Pattern seeking	Pattern seeking	Pattern seeking		Researching	Researching
<i>pattern seeking</i>	Researching	Interpret results	Identifying			
<i>identifying</i>	Drawing conclusions using evidence to justify	Researching	Classifying and Grouping			
<i>classifying and grouping</i>	Ask scientific questions	Drawing conclusions	Comparative and fair Testing			
<i>comparative and fair testing</i>		Use evidence to justify	Researching			
<i>researching</i>			Draw conclusions			
<i>draw</i>			Asking scientific questions and prediction			
			Use evidence to justify			

<i>conclusions use evidence to justify</i>						
Working scientifically skills Science Ninja skills included: Observation, Measuring, Recording Equipment	Observation Recording Measuring	Recording Equipment Observation Measuring	Recording Equipment Observation Measuring	To plan an enquiry To make a prediction To measure accurately	To ask scientific questions To dissect and catalogue the various parts of a plant.	To draw conclusions To evaluate an investigation To ask scientific questions To sort and chronologically record varying gestation periods
Building science capital	Science museum	Stem workshop		Cooking - bread making	Science museum School garden/grounds. Grow plants, butterflies or tadpoles	Trent or Pymmes Park
Composite knowledge	Features of the sun, Earth and	Explain unsupported objects fall towards	Properties of materials;		Outline the life cycle of a mammal, amphibian,	Describe the changes that occur as a human

	<p>moon</p> <p>Pattern of movement of the Earth and other planets</p> <p>Clarify the causes of day and night</p> <p>Explain why it looks like the sun is moving across the sky</p>	<p>because of the force of gravity</p> <p>Identify the effects of air and, wind resistance and friction</p> <p>Recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect</p>	<p>Understand solubility and conductivity.</p> <p>Understand the separation process of different mixtures.</p> <p>Identify irreversible changes.</p> <p>Understand how new materials are formed.</p>		<p>insect and bird.</p> <p>Compare the differences between the life cycle of different animals.</p> <p>Explain asexual reproduction in plants.</p> <p>Explain sexual reproduction in plants.</p>	<p>ages.</p> <p>To show human growth and development on a timeline.</p> <p>Define a gestation period.</p> <p>Compare differences between a human's gestation period and other animals.</p>
Component knowledge	<p>Describe the appearance of the sun, earth and moon.</p> <p>Describe the movement of the Earth and other</p>	<p>Investigate how unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling</p>	<p>Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity</p>		<p>Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird</p> <p>Research about the work of David A.</p>	<p>Identify changes humans make as they develop into old age.</p> <p>Indicate stages in human growth and development.</p>

	<p>planets relative to the sun in the solar system</p> <p>Describe the movement of the moon relative to the Earth</p> <p>Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky</p> <p>Describe the sun, Earth and moon as approximately spherical bodies</p>	<p>object</p> <p>Investigate the effects of air resistance, water resistance and friction, that act between moving surfaces</p> <p>Investigate pulleys levers and gears</p>	<p>(electrical and thermal), and response to magnets</p> <p>Investigate how some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution</p> <p>Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating</p> <p>Give reasons, based on evidence from comparative and fair tests, for the particular uses of</p>		<p>Observe life cycle changes in our local environment</p> <p>Grow new plants in a variety of ways-from seed, stem and root cuttings, tubers or bulbs</p>	<p>Understand and explain what a gestation period is</p> <p>Make clear comparisons between humans and other animals gestation.</p> <p>Identify clear changes in puberty within humans (RSHE)</p>
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			<p>everyday materials, including metals, wood and plastic</p> <p>Demonstrate that dissolving, mixing and changes of state are reversible changes</p> <p>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</p>			
Vocabulary	planets, solar system, rotation, spherical bodies, axis, orbit, geocentric,	forces, air resistance, water resistance, friction, mechanisms,	soluble, insoluble, solution, irreversible/ reversible changes,		mammal, amphibian, insect, bird, life cycles, asexual reproduction, sexual reproduction,	gestation period, growth, cell, embryo, foetus, development, puberty,

	heliocentric	pulleys, levers, gears, parachutes, sycamore seeds, gravity, Issac Newton	conductivity, thermal and electrical insulators, material, properties		metamorphosis, carpel, pistil, stigma ovary, ovules, stamen, anther, filament, pollen	baby, child, adolescent, adult, reproduce, sexual, sperm, fertilises, egg, live young
Explanation or Conclusion sentence starters, support sentences	<p>The position of the sun is...</p> <p>The position of the Earth is...</p> <p>The position of the moon is...</p> <p>The geocentric model was ...</p> <p>The heliocentric model is...</p> <p>The movement of the Earth in relation to the Sun is...</p> <p>Day and night are caused when...</p> <p>It looks like the sun moves across the sky because...</p>	<p>We see the force of gravity when...</p> <p>An example of air resistance is...</p> <p>An example of water resistance is...</p> <p>Friction is...</p> <p>Forces affect a mechanism by...</p> <p>The effect of air resistance is...</p>	<p>Solubility and conductivity are...</p> <p>Some properties of materials are...</p> <p>Mixtures can be separated...</p> <p>An irreversible change is...</p> <p>New materials to be formed by...</p>		<p>During the first stage...</p> <p>Once fully grown...</p> <p>I believe that...</p> <p>It is clear...</p>	<p>To conclude..</p> <p>for example...</p> <p>for instance..</p> <p>In conclusion...</p> <p>I know this because...</p>

Links to prior knowledge	NA	<p>Year 3 Forces and magnets</p> <p>Compare how things move on different surfaces</p> <p>Notice some forces act at a distance</p> <p>Observe how magnet attract or repel</p> <p>Compare and group every day materials on whether their are magnetic</p> <p>Describe magnets as having two poles</p> <p>Predict whether two magnets will attract or repel each other depending on which poles are facing.</p>	<p>Year 1</p> <p>Distinguish between an object and a material</p> <p>Identify everyday materials.</p> <p>Describe the simple physical properties of everyday materials</p> <p>Compare and group together a variety of everyday materials</p> <p>Year 2</p> <p>Everyday materials</p> <p>Identify and compare the suitability of a variety of materials for certain uses</p> <p>Year 3</p> <p>Compare and grouping rocks on basis of appearance</p>	<p>cont.</p> <p>Year 4</p> <p>Compare and group materials according to whether they are solid,liquid,gas</p> <p>Observe that some materials change state when heated or cooled.</p> <p>Understand the temperature this happens at.</p> <p>Identify the part played by evaporation and condensation in the water cycle</p>	<p>Year 1</p> <p>Identify wild and garden plants</p> <p>Identify and describe structure of plants and trees</p> <p>Year 2</p> <p>Observe and describe how seeds grow into plants</p> <p>Describe how plants grow and stay healthy</p> <p>Year 3</p> <p>Functions of the parts of plants</p> <p>Explore the needs of different plants for life and growth</p> <p>Investigate the way water is transported within plants</p> <p>Life cycle of plant</p> <p>Year 4</p>	<p>Year 1</p> <p>Identify, name and draw the basic parts of the human body. Know what part is associated with each sense</p> <p>Year 2</p> <p>Animals have offspring that grow into adults.</p> <p>Basic needs of animals for survival.</p> <p>Importance for humans of exercise, correct diet and hygiene</p> <p>Year3</p> <p>Animals need the right types and amount of nutrition, they get nutrition from what they eat. Identify the humans and some animals have skeletons and muscles for support and movement.</p> <p>Year 4</p>
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			<p>and properties</p> <p>Formation of fossils</p> <p>Recognise soils are made from rocks and organic matter</p>		<p>Recognise that living things can be grouped in a variety of ways.</p> <p>Explore and use classification keys.</p> <p>Identify and name a variety of living things in the local and wider environment.</p> <p>Recognise that environments can change, which sometimes poses a danger to living things</p>	<p>Describe the basic functions of the human digestive system.</p> <p>Identify different types of teeth in humans and their functions.</p> <p>Construct and interpret food chains</p>
Key knowledge for assessment	<p>Understand the position and movement of the Earth, 8 planets, relative to the Sun in the solar system (Pluto's reclassification in 2006 as a ' dwarf planet').</p> <p>Understand the movement of the</p>	<p>To raise questions about the effects of air resistance.</p> <p>Explore the effects of air resistances.</p> <p>Experience forces and their effects.</p>	<p>Make a comparison between materials using prior knowledge and additional knowledge of material properties.</p> <p>Explain the way to decide how to recover a substance depending on its state of matter and</p>		<p>Describe the differences in the life cycle of a mammal, an amphibian, an insect and a bird</p> <p>Describe the life process of reproduction in some plants (asexual & sexual) and animals</p> <p>Know about the work of David A.</p> <p>Observe life cycle changes in our local</p>	<p>To confidently indicate stages of human growth and development</p> <p>Research and discuss the gestation periods of different animals.</p> <p>Make comparisons between a human's gestation period and</p>

	<p>Moon relative to the Earth</p> <p>Describe the Sun, Earth and Moon as approximately spherical bodies</p> <p>use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky</p> <p>-</p> <p>Use a model of the sun and earth</p>	<p>Explore mechanisms that are impacted by force.</p>	<p>properties.</p> <p>Formation of new materials</p>		<p>environment</p> <p>Grow new plants in a variety of ways-from seed, stem and root cuttings, tubers or bulbs</p>	<p>other animals.</p>
<p>Key knowledge assessment questions</p>	<p>What are the positions and movement of the Earth and the 8 planets, relative to the Sun ?</p> <p>What causes the</p>	<p>What is gravity?</p> <p>What is air resistance?</p>	<p>What is the meaning of these properties of materials- permeable, flexible and absorbent?</p> <p>Name materials and</p>		<p>What is different about the life cycle of (most) mammals, and the life cycles of amphibians, insects and birds? (Think about birth)</p> <p>Explain what</p>	<p>What changes occur as a human ages?</p> <p>Label the timeline</p> <p>Explain what changes occur in adulthood to</p>

	Earth to have different seasons?	What is water resistance? What is its effect on a frog or you in the swimming pool?	their properties which make them good for these jobs		metamorphosis is	old age
	How does the moon move round the Earth?		<ul style="list-style-type: none"> - Cup for hot drinks - Saucepan - saucepan handle - water bottle - plastic for electrical plugs wires 		Which two animals go through metamorphosis?	Explain the changes from being a baby to being a child
	What shape are the Earth and Sun?	What is friction? Could you walk without friction? Why?	Which of these will dissolve in water:		Explain what asexual reproduction means	What is a gestation period?
	Describe how the Earth moves in relation to the Sun	How do forces affect a mechanism (lever or pulley)?	salt, pepper, sugar, cooking oil, tea leaves, instant coffee, jelly , sand?		Explain what sexual reproduction means	What differences are there between a human's gestation period and other animals?
	Explain what causes the Earth to have a night and day	How does a pulley work - what does it do with the force?	Explain what the term 'soluble' means and give an example of a soluble material.		What are the male /female organs in plants?	
		What are gears, how do they work?	Name two things that would make a solid dissolve quicker in water?		What is pollination?	
	What shape is the Moon?	Why do larger parachutes fall slower than smaller	How would you		What is fertilisation in plants?	What changes occur during puberty for males and females? (RSHE)
	Why does it look				How did you grow new plants in class ?	

	<p>like the sun moves across the sky?</p>	<p>ones?</p> <p>Why do streamlined objects cause less friction when moving through water>?</p>	<p>separate these mixtures Sand and water</p> <p>Raisins and flour</p> <p>Salt and water</p> <p>Paper clips and rice</p> <p>I have a mixture of salty water, fine sand and gravel .If I didn't want to keep the water at the end. What 3 steps would I take to separate them and in what order? Sieving filtering and evaporation</p> <p>What are reversible /irreversible changes? Name 2 irreversible changes 2 reversible changes.</p> <p>What happens when you mix bicarbonate of soda with vinegar?</p>			
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			<p>What material makes a good insulator and why?</p> <p>What processes cause new materials to be formed?</p>			
Cross-curricular links	<p>DT: 2D model poster of the lunar phases</p> <p>Geography: Water cycle</p>	<p>DT: Making parachutes or helicopters</p> <p>Maths: data collection and measuring</p> <p>PE: using force e.g. pulling, pushing throwing balls</p> <p>Jumping-gravity</p> <p>Swimming: water resistance</p> <p>Reading comprehension- Issac Newton</p> <p>DT: Making pulleys</p>	Maths: measuring and data collection	<p>DT: make bread (irreversible change)</p> <p>Writing:</p> <p>Maths: measuring</p>		RSHE

Subject Area – Science

Year Group – 6



Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer1	Summer 2
Knowledge	Living things and their habitats	Electricity	Light	Evolution and Inheritance	Animals, including humans	
Scientific enquiry observing over time pattern seeking identifying classifying and grouping comparative and fair testing researching draw conclusions use evidence to justify	Classifying and grouping Researching Observing over time Fair testing Draw conclusions Use evidence to justify	Comparative and fair testing Pattern seeking and identifying Use evidence to justify Draw conclusions	Comparative and fair testing Draw conclusions	Researching Observing over time	Researching Observing over time Comparative and fair testing Pattern seeking	

<p>Working scientifically skills</p> <p>Science Ninja skills included:</p> <p>Observation, Measurement, Recording Equipment</p>	<p>To present results</p> <p>Observation</p> <p>Ask scientific questions</p> <p>Prediction</p> <p>Use equipment</p> <p>Recording</p> <p>Measuring</p>	<p>To gather and record results</p> <p>To evaluate an investigation</p> <p>Models to explain scientific ideas</p> <p>Observation</p> <p>Prediction</p> <p>Use equipment</p> <p>Recording</p> <p>Ask scientific questions</p>	<p>Prediction</p> <p>To measure accurately</p> <p>Models to explain scientific idea</p> <p>Observation</p> <p>Use equipment</p> <p>Recording</p> <p>Evaluate an investigation</p> <p>ask scientific questions</p>	<p>Ask scientific questions</p> <p>Models to explain a scientific idea</p>	<p>Predict results</p> <p>Present results</p> <p>Interpreting results</p> <p>Draw conclusions</p> <p>Models to explain scientific idea</p> <p>Observation</p> <p>Recording</p> <p>Measuring</p> <p>Using equipment</p> <p>ask scientific questions</p>	
<p>Building science capital</p>	<p>Science Museum trip</p> <p>School cook talk about food hygiene, storing food safely (microbes)</p>	<p>Stem workshop</p>	<p>Visitor: Builder / electrician</p>	<p>Natural History Museum</p>	<p>Visit from a Dr/Nurse</p>	
<p>Composite knowledge</p>	<p>The classification of living things</p>	<p>The main components of a circuit</p>	<p>How light travels</p>	<p>The process of evolution by natural selection</p> <p>The significance of</p>	<p>The main parts of the human circulatory</p>	

<p>(the engine)</p>	<p>Significance of Carl Linneus as a pioneer of classification</p> <p>How living things are classified based on specific characteristics</p>	<p>The correct symbols which represent the components of a circuit</p> <p>Effect of changing components in an electrical circuit</p> <p>Function of the components</p> <p>Compare and give reasons for variations on how components function</p>	<p>How humans see things</p> <p>Formation of shadows</p>	<p>Darwin's contribution to modern scientific thinking.</p> <p>The inheritance of features</p>	<p>systems</p> <p>The functions of the heart, blood vessels and blood</p> <p>The function of the lungs</p> <p>The impact of diet , exercise and lifestyle on the way human bodies function</p>	
<p>Component knowledge (the wheels and cogs)</p>	<p>-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</p>	<p>-associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit</p> <p>-compare and give reasons for variations in how components function,</p>	<p>-recognise that light appears to travel in straight lines</p> <p>-use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into</p>	<p>-recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago</p> <p>-recognise that living</p>	<p>-identify and name the main parts of the human circulatory system, describe the functions of the heart, blood vessels blood and lungs</p> <p>-investigate the impact of exercise and diet on the human body</p>	

	<p>-give reasons for classifying plants and animals based on specific characteristics</p> <p>-plan and carry out an investigation into microbes over time</p>	<p>including the brightness of bulbs, the loudness of buzzers and the on/off position of switches</p> <p>-use recognised symbols when representing a simple circuit in a diagram</p>	<p>the eye</p> <p>-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</p> <p>-use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them</p>	<p>things produce offspring of the same kind, but normally offspring vary and are not identical to their parents</p> <p>-identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution</p>	<p>recognise the impact of alcohol/ drugs and lifestyle on the way their bodies function</p> <p>-describe the ways in which nutrients and water are transported within animals, including humans</p>	
Vocabulary	<p>Linnaean Classification, Vertebrates, Invertebrates,</p> <p>Micro-organisms, Amphibians, Reptiles, Mammals, Insects</p> <p>viruses</p> <p>bacteria</p> <p>fungi</p>	<p>Lamp, Voltage, Cells, Wires, Bulbs, Switches, Buzzers, Battery, Circuit, Series, Conductors, Insulators, Amps, Cell, Components</p>	<p>opaque, translucent, transparent, light source</p> <p>Light, shadow</p>	<p>Fossils, Adaptation, Evolution, Characteristics, Reproduction, Genetics</p>	<p>Circulatory, Heart, Blood Vessels, Veins, Arteries, Pulmonary arteries and veins, Aorta, Oxygenated, Respiratory, Diaphragm, Trachea, Bronchioles, Deoxygenated, Valve, Lungs Exercise, Respiration, Prescription, capillaries</p>	

<p>Explanation or Conclusion sentence starters, support sentences</p>	<p>Carl Linnaeus created the...the purpose of which is....</p> <p>Animals can be sorted into groups by...</p> <p>This is because....</p> <p>To make a classification key, first</p> <p>Microorganism can be.... an example of helpful..... and harmful types</p> <p>The fair test should have one variable because...</p> <p>A variable is...</p> <p>In conclusion ..</p>	<p>Symbols are used to..... to represent</p> <p>When a component in a circuit is changed.....</p> <p>This is because ...</p> <p>The way components function varies because firstly...</p> <p>The fair test should have one variable because...</p> <p>A variable is...</p> <p>In conclusion..</p>	<p>The eye sees an object by....</p> <p>This because..</p> <p>Draw a diagram to show Reflection is ...the reasons for this are</p> <p>A periscope works by..</p> <p>A shadow is formed when....</p> <p>The size of a shadow changes when...</p>	<p>Evolution is the process..</p> <p>In conclusion fossils can be used as evidence of evolution because....</p> <p>Inheritance is...</p> <p>Offspring do not always look like their parents because</p> <p>An example of adaptation is...</p> <p>This is because...</p>	<p>The key features of the heart are...The is important because it...</p> <p>The functions of the lungs are...</p> <p>The ...is joined to the...If you do more regular exercise your vital capacity will.....</p> <p>An athlete's vital capacity is.... compared to a non-athlete. This is because...</p>	
<p>Links to prior knowledge</p>	<p>Year 1</p> <p>Identify wild and garden plants</p> <p>Identify and describe</p>	<p>Year 4</p> <p>Identify appliance that run on electricity</p> <p>Construct a simple circuit,</p>	<p>Year 3</p> <p>Light is needed to see things and dark is the absence of light.</p>	<p>Year 1</p> <p>Identify wild and garden plants</p> <p>Identify and describe</p>	<p>Year 1</p> <p>Identify, name and draw the basic parts of the human body. Know what part is associated with</p>	

	<p>structure of plants and trees</p> <p>Year 2</p> <p>Observe and describe how seeds grow into plants</p> <p>Describe how plants grow and stay healthy</p> <p>Year 3</p> <p>Functions of the parts of plants</p> <p>Explore the needs of different plants for life and growth</p> <p>Investigate the way water is transported within plants</p> <p>Life cycle of plant</p> <p>Year 4</p> <p>Recognise that living things can be grouped in a variety of ways.</p> <p>Explore and use classification keys.</p>	<p>identify basic parts.</p> <p>Identify whether or not a lamp will light in a simple series circuit.</p> <p>Recognise that a switch opens and closes a circuit.</p> <p>Recognise some common conductors and insulators</p> <p>Associate metals as good conductors.</p>	<p>Light is reflected from surfaces.</p> <p>Recognising light from the sun can be dangerous, the ways to protect eyes.</p> <p>Recognise that shadows are formed when the light from its source is blocked by a solid object.</p> <p>Find patterns in the way the size of shadows change.</p>	<p>structure of plants and trees</p> <p>Year 2</p> <p>Observe and describe how seeds grow into plants</p> <p>Describe how plants grow and stay healthy</p> <p>Year 3</p> <p>Functions of the parts of plants</p> <p>Explore the needs of different plants for life and growth</p> <p>Investigate the way water is transported within plants</p> <p>Life cycle of plant</p> <p>Year 4</p> <p>Recognise that living things can be grouped in a variety of ways.</p> <p>Explore and use</p>	<p>each sense</p> <p>Year 2</p> <p>Animals have offspring that grow into adults.</p> <p>Basic needs of animals for survival.</p> <p>Importance for humans of exercise, correct diet and hygiene</p> <p>Year 3</p> <p>Animals need the right types and amount of nutrition, they get nutrition from what they eat. Identify the humans and some animals have skeletons and muscles for support and movement.</p> <p>Year 4</p> <p>Describe the basic functions of the human digestive system.</p> <p>Identify different types of teeth in humans and their</p>	
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	<p>Identify and name a variety of living things in the local and wider environment.</p> <p>Recognise that environments can change, which sometimes poses a danger to living things</p> <p>Year 5</p> <p>Differences in the life cycles of a mammal, bird, amphibian and insect.</p> <p>Describe the process of reproduction in some plants and animals.</p>			<p>classification keys.</p> <p>Identify and name a variety of living things in the local and wider environment.</p> <p>Recognise that environments can change, which sometimes poses a danger to living thing</p> <p>Year 5</p> <p>Differences in the life cycles of a mammal, bird, amphibian and insect.</p> <p>Describe the process of reproduction in some plants and animals.</p> <p>Year 3</p> <p>Rocks- describe in simple terms how fossils are formed when things that have lived are trapped within rock.</p>	<p>functions.</p> <p>Construct and interpret food chains</p>	
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<p>Key knowledge for assessment</p>	<p>Classify living things into groups according to characteristics, differences, etc.</p> <p>Explain their reasoning for classifying different plants and animals based on specific characteristics</p> <p>Name the microorganisms and explain examples of helpful and harmful types</p> <p>Understand what a fair test and variable is</p>	<p>Name and use the correct symbols to represent the components of a circuit</p> <p>Understand the effect of changing components in an electrical circuit</p> <p>Compare and give reasons for variations on how components function</p>	<p>Meanings of the words opaque, translucent, transparent</p> <p>Understand that light travels from a source in straight lines</p> <p>Understand how humans see things</p> <p>What reflection is; working scientifically to make a periscope</p> <p>Describe why shadows are formed as the same shape as objects and why the size changes</p>	<p>Explanation of evolution, , fossilisation and what a fossil is</p> <p>Recognise the use of fossils as evidence of evolution</p> <p>Compare fossil evidence</p> <p>Explanation of inheritance (human) understand difference between inherited and acquired characteristic -recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents</p> <p>Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution</p>	<p>Identify and name the main parts of the human circulatory system</p> <p>Describe the functions of the heart, blood vessels, blood and lungs</p> <p>Understanding why a healthy diet and exercise important</p> <p>Understand the dangers to health of alcohol and non-prescription drugs</p> <p>Recognise reasons as to why is it important to have a healthy lifestyle</p>	
<p>Key knowledge</p>	<p>What did Carl Linnaeus</p>	<p>What symbols can we use in</p>	<p>What do opaque,</p>	<p>Explain what evolution</p>	<p>What are the functions of the heart, blood and blood</p>	

<p>assessment questions (Approx. 5)</p>	<p>create and why? Give 2 different ways animals could be sorted into 2 groups What is the name of the original level of groupings that include 'animal' and 'plant'? Use a key to sort a group of animals For the 3 types of microorganism; an example of helpful and harmful types</p>	<p>a circuit? Can you create a circuit diagram? What can we use to stop the flow in the circuit? What happens to the brightness we add more bulbs to a circuit? How does the amount of voltage affect the brightness of a light bulb? What is a variable?</p>	<p>translucent, transparent mean? Draw a diagram to show how the eye sees an apple Draw and label an example of reflection Label a diagram showing how light travels in a straight line. Describe how a shadow is formed when an opaque object is put in front of a light source How does the size of a shadow change as an opaque object is moved closer to a light source?</p>	<p>means Explain what a fossil is How long does it take to make a fossil? How can we use fossils as evidence of evolution? Compare a fossil with a skeleton (1 x difference and similarity) Explain what inheritance means Show which are inherited and acquired features of a human Using an example explain what adaptation is</p>	<p>vessels? What are the main parts of the human circulatory system? What are the functions of the lungs? How are nutrients and water transported through the human body? What is a healthy lifestyle? What impact does alcohol and drugs have on the body?</p>	
<p>Cross-curricular links</p>		<p>Victorians - electricity introduced into domestic homes</p>			<p>Maths –statistics Reading- comprehension texts the circulatory and respiratory system. DT -make a model of the</p>	

					heart / lungs RSHE	
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