

Year 1	Aut 1	Aut 2	Sp 1 & 2	Su 1	Su 2			
Knowledge Skills & Understanding	<u>Being Me</u> Can they name the parts of the human body that they can see? Can they draw & label basic parts of the human body? Can they identify the main parts of the human body and link them to their senses? Can they name the parts 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?	<u>Animals</u> Can they point out some of the differences between different 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?	<u>Everyday Materials</u> Can they distinguish between an object and the material from which it is made? Can they describe materials using their senses? Can they describe materials using their senses, using specific scientific words? Can they explain what material objects are made from? Can they explain why a material might be useful for a specific job? Can they name some different everyday materials? e.g. wood, plastic, metal, water and rock Can they sort materials into groups by a given criteria? Can they explain how solid shapes can be changed by squashing, bending, twisting and stretching?	<u>Plants</u> 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)?	<u>Seasonal Changes</u> Can they observe changes across the four seasons? Can they name the four seasons in order? Can they observe and describe weather associated with the seasons? Can they observe and describe how day length varies?			
Scientific Vocabulary	senses see smell feel arm beak describe reptile carnivore	eye ear nose leg human similar fish bird omnivore	sight hearing touch wing animal different amphibian mammal herbivore	material wood plastic glass metal water rock	plant root seeds leaf water living dead alive garden	flower stem seedlings weed feeding non-living healthy not alive wild	common tree deciduous evergreen snow sunshine cloudy	season weather day rain windy snow sunshine cloudy

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	Being Me	Animals	Everyday materials	Plants	Seasonal Change
Research		How are the animals in Australia different to the ones that we find in Britain? Do all animals have the same senses as humans?	How are bricks made? Which materials can be recycled?	What are the most common plants and where can we find them? Are there plants that are in flower in every season? What are they?	
Pattern Seeking	Do you get better at smelling as you get older?		Is there a pattern in the types of materials that are used to make objects in a school?	Do trees with bigger leaves lose their leaves first in the Autumn? Is there a pattern in where we find moss growing in the school grounds?	Does the wind always blow the same way?
Observing over time	How does my height change over the year?		What happens to materials over time if we bury them in the ground? What happened to shaving foam over time? How does the colour of a UV bead change over the day?	How does a daffodil bulb change over the year? How does my sunflower change each week? How does the oak tree change over the year?	
Identifying and classifying	What are the names for all the parts of our bodies?	How can we organise all the zoo animals?	We need to choose a material to make an umbrella. Which materials are waterproof? Which materials will float and which will sink?	How can we sort the leaves that we collected on our walk?	How would you group these things based on which season you are most likely to see them in?
Comparative tests	Is our sense of smell better when we can't see?		Which materials are the most flexible? Which materials are the most absorbent?	What type of compost grows the tallest sunflower? Which tree has the biggest leaves?	In which season does it rain the most?

Year 2	Aut 1	Aut 2	Sp 1 & 2	Su 1	Su 2
Knowledge Skills & Understanding	<u>Classifying and grouping materials</u> Can they describe the simple physical properties of a variety of everyday materials? Can they compare and group together a variety of materials based on their simple physical properties?	<u>Changing materials</u> Can they explore how the shapes of solid objects can be changed? (squashing, bending, twisting, stretching) Can they find out about people who developed useful new materials? (John Dunlop, Charles Macintosh, John McAdam) Can they identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper, cardboard for particular uses? Can they explain how things move on different surfaces?	<u>Animals, including humans</u> 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?	<u>Plants</u> Can they describe what plants need to survive? Can they observe and describe how seeds and bulbs grow into mature plants? Can they find out & describe how plants need water, light and a suitable temperature to grow and stay healthy?	<u>Living things and their habitats</u> Can they match certain living things to the habitats they are found in? Can they explain the differences between living and non-living things? Can they describe some of the life processes common to plants and animals, including humans? Can they decide whether something is living, dead or non-living? Can they describe how a habitat provides for the basic needs of things living there? Can they describe a range of different habitats? Can they describe how plants and animals are suited to their habitat?
Scientific Vocabulary	objects paper cardboard purpose shape squash bend stretch twist (+previous years)	child diet air adult exercise hygiene healthy water food (+previous years)	bulbs temperature light (+previous years)	similar different habitat survive chain	

Year 2	Aut 1	Aut 2	Sp 1 & 2	Su 1	Su 2
	Grouping materials	Changing materials	Animals, including humans	Plants	Living things & habitats
Research	How have materials changed over time? How are plastics made?		How do we need to look after a pet dog/cat/lizard and keep it healthy? What food do we need in a healthy diet and why?	How does a cactus survive in the desert with no water?	How does the habitat of the Arctic compare with the habitat of the rainforest?
Pattern Seeking	Do magnetic materials always conduct electricity?		Which age group of children wash their hands the most in a day?	Do bigger seeds grow into bigger plants?	What conditions do woodlice prefer to live in? Which habitat do worms prefer - where can we find the most worms?
Observing over time		How long do bubble bath bubbles last for? What will happen to our snowman? Would a paper boat float forever?	How does a tadpole change over time? How much food and drink do I have over a week?	What happens to my bean after I have planted it?	
Identifying and classifying	Which materials are shiny and which are dull? Which materials will let electricity go through them and which will not?		Which offspring belongs to which animal?	How can we identify the trees that we observed on our tree hunt?	How would you group these plants and animals based on what habitat you would find them in? How would you group things to show which are living, dead, or have never been alive?
Comparative tests	Which shapes make the strongest paper bridge? Which material would be best for the roof of the little pig's house?		Do amphibians have more in common with reptiles or fish? Do bananas make us run faster?	Do cress seeds grow quicker inside or outside? Is there the same level of light in the evergreen wood compared with the deciduous wood?	

Year 3	Aut 1	Aut 2	Sp 1	Sp 2	Su 1 & 2
Knowledge Skills & Understanding	<u>Forces and Magnets</u> Can they compare how things move on different surfaces? Can they observe that magnetic forces can be transmitted without direct contact? Can they observe how some magnets attract or repel each other? Can they classify which materials are attracted to magnets and which are not? Can they notice that some forces need contact between two objects, but magnetic forces can act at a distance? Can they compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet? Can they identify some magnetic materials? Can they describe magnets have having two poles (N & S)? Can they predict whether two magnets will attract or repel each other depending on which poles are facing?	<u>Animals, including humans</u> Can they explain the importance of a nutritionally balanced diet? Can they describe how nutrients, water and oxygen are transported within animals and humans? 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?	<u>Light</u> Can they recognise that they need light in order to see things? Can they recognise that dark is the absence of light? Can they notice that light is reflected from surfaces? Can they recognise that light from the sun can be dangerous and that there are ways to protect their eyes? Can they recognise that shadows are formed when the light from a light source is blocked by a solid object? Can they find patterns in the way that the size of shadows change?	<u>Plants</u> 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? Can they explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal?	<u>Rocks and Soils</u> 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?
Scientific Vocabulary	force contact push iron opposite repel pole magnet pull steel attract surface	skeleton balanced protect muscle (+previous years)	light source bounce solid shiny reflection eyes reflect surface shadow mirror	flowering carbon dioxide support pollination fertilisation explosion oxygen nutrients pollen stigma dispersed (+previous years)	properties fossils organic matter millions sieve remains

Year 3	Aut 1	Aut 2	Sp 1	Sp 2	Su 1 & 2
	Forces and Magnets	Animals, inc humans	Light	Plants	Rocks and soils
Research	How have our ideas about forces changed over time? How does a compass work?	Why do different types of vitamins keep us healthy and which foods can we find them in?	How does the sun make light?	What are all the different ways that seeds disperse?	Who was Mary Anning and what did she discover?
Pattern Seeking	Does the size and shape of a magnet affect how strong it is?	Do male humans have larger skulls than female humans? Are you more likely to have bad eye sight and to wear glasses if you are older?		What colour flowers do pollinating insects prefer?	Is there a pattern in where we find volcanos on planet Earth?
Observing over time	If we magnetise a pin, how long does it stay magnetised for?		When is our classroom darkest? Is the sun the same brightness all day?	What happens to celery when it is left in a glass of coloured water? How do flowers in a vase change over time?	How does tumbling change a rock over time? What happens when water keeps dripping on a sandcastle?
Identifying and classifying	What materials are magnetic?	How do the skeletons of different animals compare? How can we group the food that we eat?	How would you organise these light sources into natural and artificial sources?	How many different ways can you group our seed collection?	Can you use the identification key to find out the name of each of the rocks in your collection?
Fair tests	How does the mass of an object affect how much force is needed to make it move?	How does the angle that your elbow/knee is bent affect the circumference of your upper arm/thigh?	How does the number of layers of transparent plastic affect how much light can pass through? How does the distance between the shadow puppet and the screen affect the size of the shadow?	How does the length of a carnation stem affect how long it takes for the food colouring to dye the petals?	How does adding different amounts of sand to soil affect how quickly water drains through it?
Comparative tests	Which magnet is the strongest? Which surface is best to stop you slipping?	How does the skull circumference of a girl compare with that of a boy?	Which pair of sunglasses will be best at protecting our eyes?	Which conditions help seeds germinate faster?	Which soil absorbs the most water?

Year 4	Aut 1	Aut 2	Sp 1	Sp 2	Su 1 & 2
Knowledge Skills & Understanding	<u>States of matter</u> Can they compare and group materials together, according to whether they are solids, liquids or gases? Can they explain what 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?	<u>Electricity</u> Can they identify common appliances that run on electricity? Can they construct a simple series electric circuit? Can they identify and name the basic part in a series circuit, including cells, wires, bulbs, switches and 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 complete loop with a battery? Can they recognise that a switch opens and closes a circuit? Can they associate a switch opening with whether or not a lamp lights in a simple series circuit? Can they recognise some common conductors and insulators? Can they associate metals with being good conductors?	<u>Sound</u> 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 (louder/softer)? Can they recognise how vibrations from sound travel through a medium to a ear? Can they find patterns between the pitch of a sound and features of the object that produce it? Can they find patterns between the volume of the sound and the strength of the vibrations that produced it? Can they recognise that sounds get fainter as the distance from the sound source increases? Can they explain how you could change the pitch of a sound? Can they investigate how different materials can affect the pitch and volume of sounds?	<u>Animals, including humans</u> Can they identify and 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?	<u>Living things and their habitats</u> Can they recognise that living things can be grouped in a variety of ways? Can they explore and use a classification key to group, identify and name a variety of living things? (plants, vertebrates, invertebrates) Can they compare the classification of common plants and animals to living things found in other places? (under the sea, prehistoric) Do they recognise that environments can change and this can sometimes pose a danger to living things?
Scientific Vocabulary	solid liquid gas properties state degrees evaporation rate condensation water cycle	electrical circuit cells appliances device bulbs batteries switches buzzer series wires conductor insulator	vibrate volume vibrations medium pitch	permanent teeth molars canines incisors producers oesophagus stomach prey intestines digestive system tongue consumers predators (+ previous years)	micro-organism classification environment pollution species endangered extinct (+ previous years)

Year 4	Aut 1	Aut 2	Sp 1	Sp 2	Su 1 & 2
	States of matter	Electricity	Sound	Animals, including humans	Living things and their habitats
Research	What are hurricanes and how do they happen?	How has electricity changed the way we live? How does a light bulb work?	Do all animals have the same hearing range?	How do dentists fix broken teeth?	Why are people cutting down the rainforests and what effect does that have?
Pattern Seeking	Is there a pattern in how long it takes different sized ice lollies to melt?	Which room has the most electrical sockets in a house?	Is there a link between how loud it is in school and the time of day? If there is a pattern, is it the same in every area of the school?	Are foods that are high in energy always high in sugar?	How has the use of insecticides affected bee population?
Observing over time	Which material is best for keeping our hot chocolate warm? How does the level of water in a glass change when left on the windowsill? How does the mass of an ice cube change over time?	How long does a battery light a torch for?	When is our classroom the quietest?	How does an egg shell change when it is left in cola?	How does the variety of invertebrates on the school field change over the year?
Identifying and classifying	Can you group these materials and objects into solids, liquids and gases?	How would you group these electrical devices based on where the electricity comes from?		What are the names of all the organs involved in the digestive system? How can we organise teeth into groups?	Can we use the classification keys to identify all the animals that we caught pond dipping?
Fair tests	How does the mass of a block of ice affect how long it takes to melt? How does the surface area of a container of water affect how long it takes to evaporate?	How does the thickness of a conducting material affect how bright the lamp is?	How does the volume of a drum change as you move further away from it? How does the length of a guitar string/tuning fork affect the pitch of the sound?		Does the amount of light affect how many woodlice move around?
Comparative tests	Does seawater evaporate quicker than fresh water?	Which metal is the best conductor of electricity?	Which material is best to use for muffling sound in ear defenders?	In our class, are omnivores taller than vegetarians?	How does the average temperature of the pond water change in each season?

Year 5	Aut 1 & 2	Sp 1	Sp 2	Su 1 & 2
Knowledge Skills & Understanding	<u>Forces</u> Can they explain that unsupported objects fall towards the earth because of the force of gravity acting between the earth and the falling object? Can they identify the effects of air resistance, water resistance and friction that act between moving surfaces? Can they recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect?	<u>Earth and Space</u> Can they identify and explain the movement of the Earth and other planets relative to the sun in the solar system? Can they explain how seasons and the associated weather is created? 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?	<u>Properties and changes to materials</u> Can they compare and group 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 how mixtures might be separated, including through filtering, sieving, evaporating? Can they give reasons, based on evidence for comparative and fair tests for the particular uses of 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 is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda? Can they use the terms 'reversible' and 'irreversible'?	<u>Animals, including humans & Living things and their habitats</u> Can they describe the changes as humans develop to old age? Can they describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird? Can they describe the life cycles of common plants? Can they explore the work of well known naturalists and animal behaviourists? (David Attenborough and Jane Goodall)
Scientific Vocabulary	gravity grip lever friction resistance pulley energy mechanism gear	solar system Earth spherical orbit planet sphere rotation satellite	transparent dissolve sieving evaporating irreversible conduct solution filtering reversible (+ previous years) insulate separated acid reaction	reproduce puberty (+ previous years) reproduction

Year 5	Aut 1 & 2	Sp 1	Sp 2	Su 1 & 2
	Forces	Earth and Space	Properties and changes to materials	Animals, including humans & Living things and their habitats
Research	How do submarines sink if they are so full of air?	How have our ideas about the solar system changed over time? What unusual objects did Jocelyn Bell Burnell discover?	What are microplastics and why are they harming the planet?	What are the differences between the life cycle of an insect and a mammal? Why do people get grey/white hair when they get older?
Pattern Seeking	Do all objects fall through water in the same way?	Is there a pattern between the size of a planet and the time it takes to travel around the Sun?	Do all stretchy materials stretch in the same way?	Is there a relationship between a mammal's size and its gestation period? Are the oldest children in our school the tallest?
Observing over time	How long does a pendulum swing for before it stops?		How does our compost heap change overtime? How does a container of salt water change over time? How does a sugar cube change as it is put in a glass of water? How does a nail in salt water change over time?	How do brine shrimp change over their lifetime? How does a bean change as it germinates?
Identifying and classifying	Can you label and name all the forces acting on the objects in each of these situations?	How could you organise all the objects in the solar system into groups? Can you observe and identify all the phases in the cycle of the Moon?	Can you group these materials based on whether they are transparent or not?	Can you identify all the stages in the human life cycle? Compare this collection of animals based on similarities and differences in their lifecycle.
Fair tests	How does the angle of launch affect how far a paper rocket will go? How does the surface area of a container affect the time it takes to sink? How does the surface area of a parachute affect the time it takes to fall to the ground?		How does the temperature of tea affect how long it takes for a sugar cube to dissolve?	How does the level of salt affect how quickly brine shrimp hatch? How does age affect a human's reaction time?
Comparative tests	Which seed shape takes the longest time to fall? Which shoe is the most slippery? Which shape parachute takes the longest to fall?	How does the length of daylight hours change in each season?	Which types of sugar dissolves the fastest?	Who grows the fastest, girls or boys?

Year 6	Aut 1	Au 2	Sp 1	Sp 2	Su 1 & 2
Knowledge Skills & Understanding	<u>Light</u> Can they recognise that light 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?	<u>Electricity</u> Can they identify and name the basic parts of a simple electric series circuit? (cells, wires, bulbs, switches, buzzers) Can they compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers, the on/off position of switches? Can they use recognised symbols when representing a simple circuit in a diagram?	<u>Animals, including humans</u> 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?	<u>Evolution and Inheritance</u> 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? Can they identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution?	<u>Living things & their habitats</u> 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?
Scientific Vocabulary	straight prism lens image pupil retina (+ previous years)	voltage series parallel component circuit diagram symbols motor (+ previous years)	blood vessels heart circulatory artery vein capillary drugs (+ previous years)	offspring variation adaptation habitat evolution	characteristics vertebrates invertebrates grasses cereals shrubs deciduous coniferous ferns mosses algae (+ previous years)

Year 6	Aut 1	Aut 2	Sp 1	Sp 2	Su 1 & 2
	Light	Electricity	Animals, including humans	Evolution and Inheritance	Living things & their habitats
Research	Why do some people need to wear glasses to see clearly? How do astronauts know what stars are made of?	How has our understanding of electricity changed over time?	How have our ideas about disease and medicine changed over time?	What happened when Charles Darwin visited the Galapagos islands?	What do different types of microorganisms do? Are they harmful?
Pattern Seeking	Is there a pattern in how bright it is in school over the day? And, if there is a pattern, is it the same in every classroom?	Does the temperature of a light bulb go up the longer it is on?	Is there a pattern between what we eat for breakfast and how fast we can run? Is there a pattern between the size and shape of a bird's beak and the food it will eat?		Do all flowers have the same number of petals?
Observing over time	How does my shadow change over the day?		How does my heart rate change over the day? How do different animal embryos change? How much exercise do I do in a week?		What happens to a piece of bread if you leave it on the windowsill for two weeks?
Identifying and classifying	Can you identify all the colours of light that make white light when mixed together? What colours do you get if you mix different colours of light together?	How would you group electrical components and appliances based on what electricity makes them do?	Which organs of the body make up the circulatory system, and where are they found?	Compare the skeletons of apes, humans and Neanderthals—how are they similar and how are they different? Can you classify these observations into evidence for the idea of evolution and evidence against?	How would you make a classification key for vertebrates, invertebrates and micro-organisms?
Fair tests	How does the angle that a light ray hits a plane mirror affect the angle at which it reflects off the surfaces?	How does the voltage of the batteries in a circuit affect the brightness of the lamp? How does the voltage of the batteries in a circuit affect the volume of the buzzer?	How does the length of time we exercise for affect our heart rate? Can exercising regularly affect your lung capacity?		
Comparative tests	Which material is most reflective?	Which make of battery lasts the longest? Which type of fruit makes the best fruity battery?	What type of exercise has the greatest effect on our heart rate?	What is the most common eye colour in our class?	