Daven Primary School: science curriculum

Roadmap

Unit overviews

Knowledge and skills mapping

EYFS

YEAR 1/2 CYCLE A

YEAR 1/2 CYCLE B

EYFS - Understanding the World

Learning about seasons; exploring our local area, including it's habitats, animals that live around us and why. Planting seeds, learning about hibernation; exploring our senses and working with a range of materials.

Year 1/2- Cycle A

Introduction to plants; seasonal changes; habitats; life cycles and health; plant growth; and making connections.

Year 1/2- Cycle B

Sensitive bodies; everyday materials; comparing animals; use of everyday materials; microhabitats; and making connections.

Year 3/4- Cycle B

Forces and magnets; states of matter; sound and vibration; classification and changing habitats; plant reproduction; and making connections.

YEAR 3/4 CYCLE B

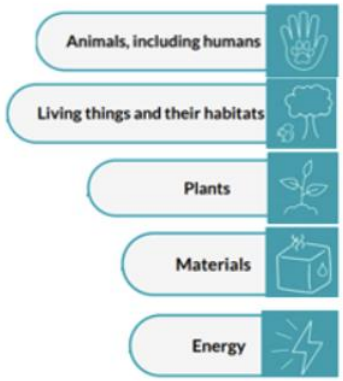
YEAR 3/4 CYCLE A

Year 3/4- Cycle A

Light and shadows; movement and nutrition; rocks and soil; digestion and food; electricity and circuits; and making connections.

Year 5/6- Cycle B

Life cycles and reproduction; unbalanced forces; classifying big and small; circuits, batteries and switches; evolution and inheritance; human timeline; and making connections.



Year 5/6- Cycle A

Mixtures and separation; properties and change; Earth and space; circulation and health; light and reflection; and making connections.

YEAR 5/6 CYCLE A

YEAR 5/6 CYCLE B

Nursery		Reception			
Nursery 1 Explore natural materials, indoors and outside including Forest school. Explore and respond to different natural phenomena: weather, change. Etc. Notice and talk about seasonal changes. Understand how we respond to the weather and keep ourselves safe- hats, coats etc. Explore natural materials, indoors and outside. Plant care for and watch cress grow. Explore materials with different properties- natural materials, different sensations and textures etc. Look after plants.	**Nursery 2** Use all their senses in hands-on exploration of natural materials – leaves, conkers, ice etc and of materials with similar/different properties. Talk about what they see, using a wide vocabulary, including seasonal change & weather. Explore how things work: wind-up toys, moving model vehicles. Explore and talk about different forces they can feel – magnets etc. Understand the key features of the life cycle of a plant & animals: hatch caterpillars etc. Plant & care for growing plants: plant cress.	**Animal adventures** **Living and non-living** (to sort objects into living and non-living). **Describing minibeasts** (to find and describe minibeasts). **On the farm** (to sort and describe farm animals). **Animal homes** (to sort animals based on where they live). **Zoo animals** (to compare my home with a zoo animal home).	**Changing seasons** **Autumn treasures** (to recognise changes outside in autumn). **Whatever the weather** (to recognise different types of weather). **Winter wildlife** (to recognise how animals prepare for winter). **Springtime magic** (to recognise changes outside in spring). **Sandcastle science** (to investigate the mixture needed to build a sandcastle).	**I am a scientist** **Push or pull?** (to explore ways to make objects move). **Loud or quiet?** (to explore different sounds). **Float or sink?** (to explore whether objects float or sink). **Freeze or melt?** (to explore freezing and melting). **Light or dark?** (to explore how light makes shadows).	**Our beautiful planet** **Exploring outdoors** (to recognise some ways to look after the planet). **Plants** (to identify and name plants). **Exploring plant parts** (to identify and name plant parts). **Planting seeds** (to explore what helps seeds grow). **Caring for the Earth** (to recognise some ways to look after the planet).

Year 1/2 Cycle A

Plants: Introduction to plants. **What is a plant?** (to identify plants in the school grounds). **Parts of a plant** (to identify parts of a flowering plant). **Wild and garden plants** (to identify and name wild and garden plants). **Deciduous and evergreen trees** (to identify and name deciduous and evergreen trees). **Sorting seeds** (to recognise that new plants come from seeds and bulbs). **Which plant parts can you eat?** (to recognise the importance of a scientist's role).	**Forces and space: Seasonal changes.** **Wonderful weather** (to identify how the weather changes across the four seasons). **Seasonal activities** (to identify events and activities that take place in different seasons). **How do trees change?** (to recognise how trees change across the four seasons). **Daylight hours** (to recognise that daylight hours change across the four seasons). **Observing overtime** (to observe changes across the four seasons). **Weather reports** (to plan and carry out a weather report).	**Living things: Habitats** **Life processes** (to identify some of the characteristics of living things). **It feels good to be alive** (to recognise the difference between things that are alive, were once alive or have never been alive). **Introduction to habitats** (to identify plants and animals in different habitats). **Woodland habitats** (to identify how a habitat provides animals and plants with what they need to survive). **Rainforest and ocean habitats** (to recognise how animals and plants depend on each other). **Food chains** (to recall how animals get their food from plants and other animals.	**Animals including humans: Life cycles and health** **The human life cycle** (to identify different stages of the human life cycle). **Life cycles** (to know which offspring come from which parent animal). **Growth** (to observe and measure growth in humans). **Survival** (to identify and list the basic needs for survival for humans and animals). **Exercise and hygiene** (to recognise the importance of exercise and personal hygiene). **Balanced diet** (to identify how to have a balanced diet).	**Plants: plant growth** **What do seeds need to grow?** (to recognise that seeds need certain conditions for growth). **Seeds and bulbs** (to recognise that seeds and bulbs contain what they need to grow into a plant). **Germination** (to describe what seeds need to germinate). **Light and plant growth** (to describe the effect of light on plant growth). **Plant life cycle** (to identify stages of a plant's life cycle). **Plant care** (to recognise what plants need for healthy growth).	**Making connections: Ocean predators** **Rockpooling**(to describe a rock pool as an example of a habitat). **Life cycles of ocean animals** (to compare animal life cycles). **Ocean litter** (to describe some ways humans affect the ocean). **Ocean food chains** (to describe how litter affects food chains). **Being a marine biologist** (to report on changes to ocean numbers).

Year 1/2 Cycle B

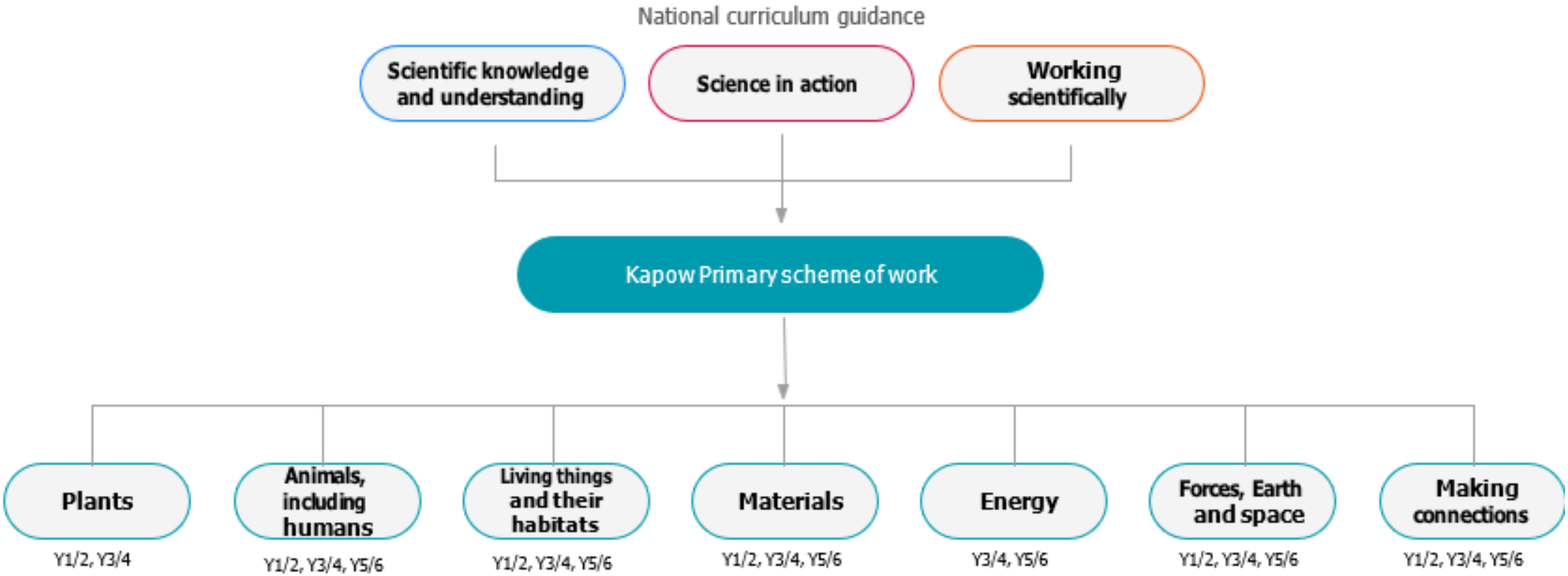
Animals: Sensitive bodies **Body parts** (to name parts of the human body). **The senses** (to name the body parts used for each sense).	**Materials: Everyday materials** **Naming materials** (to identify everyday materials). **Material detectives** (to recognise the difference between objects and	**Animals: Comparing animals** **Animal groups** (to identify and group animals). **Describing animals** (to describe a variety of animals).	**Materials: Use of everyday materials** **Objects and materials** (to recognise that objects are made from materials that suit their uses).	**Living things: Microhabitats** **Identifying and classifying minibeasts** (to classify a variety of minibeasts). **Introduction to scientific enquiry**	**Making connections: Fairytale science** **Do all animals move at the same speed?** (to compare and describe the different animal groups).

Taste and touch (to identify the body parts used for the senses of taste and touch). **Sight and smell** (to identify the body parts used for the sense of smell and sight). **Hearing** (to identify the body part used for the sense of hearing). **Senses in action** (to recognise how the senses are used in everyday life).	materials). **Introduction to properties** (to describe the properties of materials). **Is it absorbent?** (to group materials based on their properties (absorbency)). **Is it waterproof?** (to group materials on their properties (waterproofness)). **Is it tough?** (to group materials based on results).	**Comparing animals** (to compare the features of animals). **Carnivore, herbivore or omnivore?** (to identify animals that are carnivores, herbivores and omnivores). **Pets** (to recognise animals that make suitable pets). **Jane Goodall** (to describe and compare the structure of animals).	**Which material is suitable?** (to recognise that objects are made from materials that suit their uses). **Stretch it, twist it, bend it, squash it!** (to recognise that the shape of some solid objects can be changed). **Testing stretchiness** (to compare the suitability of materials for particular uses). **Testing strength** (to recognise that the strength of some materials can be changed). **Eco-friendly materials** (to compare the suitability of materials for particular uses).	(to recognise how scientists answer questions). **Minibeast hunt** (to recognise that living things live in habitats to which they are suited). **Planning an experiment** (to ask questions and plan how to carry out an experiment). **Woodlice experiment** (to carry out an experiment and record data in a table). **What is a botanist?** (to identify a variety of flowering plants).	**Is the Gingerbread Man waterproof?** (to describe the properties of a material). **Is the Gingerbread Man's home waterproof?** (to describe the properties of everyday materials). **Do all body parts have the same sense of touch?** (to use the senses to observe and describe). **How many towels will stop the marble being felt?** (to use touch to observe and describe).
Year 3/4 Cycle A					
Energy: Light and shadows **Sources of light** (to explain the role of light sources). **What is reflection?** (to compare light reflecting on different surfaces). **Where do shadows come from?** (to recognise which materials cast a shadow). **Shadows throughout the day** (to summarise how shadows change throughout the day). **Investigating shadows** (to investigate how the distance of the light source affects the size of its shadow). **Using light and shadows** (to tell a story using shadow puppets).	**Animals: Movement and nutrition** **Skeletons** (to explain the role of a skeleton). **The bones in our body** (to recognise the main bones in the body). **Muscles and movement** (to explain how muscles are used for movement). **Eating for survival** (to explain how food is an essential energy source for animals). **Nutrient groups** (to identify the main nutrient groups and their simple functions). **Balanced diet** (to explain what makes a balanced diet).	**Materials: Rocks and soil** **Rocks: Appearance** (to group rocks using their appearance). **Rocks: Physical properties** (to groups rocks using their physical properties). **Fossil formation** (to describe the process of fossil formation). **Fossils and paleontology** (to identify fossils and group rocks accordingly). **Soil formation** (to compare soils and how they were formed). **Soil layers and earthworms** (to describe a soil sample using sedimentation).	**Animals including humans: Digestion and food** **The human digestive system** (to describe the function of the human digestive system). **Human teeth** (to recognise the different types of human teeth and their roles in eating). Investigating dental hygiene (to explain how to care for our teeth). **Investigating dental hygiene** (to explain how to care for our teeth). **Teeth of carnivores, herbivores and omnivores** (to recognise that differences in teeth relate to an animal's diet). **Producers, predators and prey in food chains** (to recognise producers, predators and prey in food chains). **Poo clues** (to recognise that animal poo can give us clues about digestion, teeth and diet).	**Energy: Electricity and circuits** **Using electricity** (to recognise how electrical appliances are powered). **Building circuits** (to construct an electrical circuit). **Switching on and off** (to explain the use of switches in a circuit). **Investigating electrical conductors and insulators** (to explain the use of materials as electrical conductors or insulators). **Investigating bulb brightness** (to investigate what affects bulb brightness). **Electrical safety** (to explain how to be safe around electricity).	**Making connections: How does food affect muscle fatigue?** **Investigating muscle fatigue – Planning** (to revise the units *Movement and nutrition, Digestions and food* and *Rocks and soil*). **Investigating muscle fatigue – Gathering data** (to revise the units *Movement and nutrition* and *Digestion and food).* **Investigating muscle fatigue – Analysing, concluding and evaluating** (to revise the unit *Movement and nutrition* and *Digestion and food*). **Investigating muscle fatigue – Extending** (to revise the unit *Electricity and circuits).* **Investigating muscle fatigue – Presenting** (to revise the units *Light and shadows* and *Movement and nutrition*).
Year 3/4 Cycle B					
Forces and space: Forces and magnets	**Materials: States of matter** **Solids** (to identify solids using their	**Energy: Sound and vibration** **Vibrations** (to describe how sounds	**Living things: Classification and changing habitats**	**Plants: Plant reproduction** **Plant growth** (to identify the	**Making connections: How does wind force affect seed dispersal?**

Pushes, pulls and twists (to describe the effects of contact forces). **Friction** (to recognise the effects and uses of forces). **Investigating friction** (to interpret how and why things move differently on different surfaces). **Magnets** (to describe the effects of magnets). **Investigating magnet strength** (to compare the properties of different types of magnets). **Uses of magnets** (to explain the uses of magnets).	properties). **Liquids and gases** (to identify liquids and gases using their properties). **Melting and freezing** (to describe melting and freezing). **Condensing and evaporating** (to describe condensing and evaporating). **The water cycle** (to describe the different stages of the water cycle). **Climate change and the water cycle** (to describe how temperature affects evaporation rates and the water cycle).	are made). **Sound waves** (to describe how sounds are heard through different mediums). **Volume** (to describe the relationship between vibration strength and volume). **Volume and distance** (to describe the relationship between volume and distance). **Pitch** (to describe pitch and how to change it). **Sound insulation** (to explain how insulating materials can be used to muffle sounds).	**Grouping living things: Vertebrates and invertebrates** (to group animals in various ways). **Grouping living things: Plants** (to group plants in various ways). **Classification keys** (to make careful observations). **Habitats and seasonal change** (to recognise and describe different habitats and their inhabitants). **Human impacts on habitats** (to recognise the impact humans can have on habitats). **Natural changes to habitats** (to recognise the impact of natural disasters on habitats).	growth and survival needs of plants). **Structure and function** (to describe the relationship between structure and function in plants). **Transporting water** (to investigate how water is transported in plants). **Flowers** (to explore the role of flowers in the life cycle of a plant). **Evaluating an enquiry** (to apply knowledge of plant life and growth). **Seed dispersal** (to explore seed dispersal and methods).	**Investigating seed dispersal – Planning** (to revise the units Forces and magnets and Plant reproduction). **Investigating seed dispersal – Gathering data** (to revise the units Forces and magnets, Plant reproduction and States of matter). **Investigating seed dispersal – Analysing, concluding and evaluating** (to revise the units *Classification and changing habitats, Plant reproduction and Forces and magnets).* **Investigating seed dispersal – Extending** (to revise the units Sound and vibrations and Forces and magnets). **Investigating seed dispersal – Presenting** (to revise all units across the year).
Year 5/6 Cycle A					
Materials: Mixtures and separation **Mixtures** (to describe mixtures). **Sieving** (to explain the process of sieving). **Filtering** (to explain the process of filtering). **Solutions** (to describe solutions and how they can be identified). **Dissolving** (to identify which factors affect the time taken to dissolve). **Evaporating** (to describe the process of evaporation).	**Materials: Properties and change** **Hardness** (to determine the hardness of materials and link this to their uses). **Transparency** (to determine the transparency of different materials and link this to their uses). **Conductivity** (to determine the conductivity of different materials and link this to their uses). **Reversible changes** (to demonstrate reversible changes). **Irreversible changes: Burning and rusting** (to demonstrate irreversible changes). **Irreversible changes: Mixing** (to demonstrate irreversible changes).	**Forces and space: Earth and space** **Models of our Solar System** (to compare the contributions of Ptolemy, Alhazen and Copernicus to models of the Solar System). **Our Solar System** (to describe the movement and shapes of the celestial bodies in our Solar System). **The Moon** (to describe the movement of the Moon relative to the Earth). **Day and night** (to explain the causes of day and night and the seasons). **Time** (to devise a sundial to tell the time). **Satellites and space junk** (to describe some uses of satellites and the problems posed by space junk).	**Animals including humans: Circulation and health** **Factors affecting health** (to identify factors that affect our health and how to reduce their negative impact). **The heart and circulatory system** (to summarise the key structures and purpose of the circulatory system). **Blood** (to identify the key roles of blood). **Heart rate** (to explore the relationship between animal size and heart rate). **Investigating exercise and heart rate** (to investigate the relationship between exercise and heart rate). **Heart rate and fitness** (to describe the relationship between heart rate and fitness).	**Energy: Light and reflection** **The pathway of light** (to describe the pathway of light). **See the light** (to describe how we see). **Measuring shadows** (to explain how shadows change). **Reflecting light** (to investigate what affects the angle of the reflected ray). **Making a periscope** (to explain how a periscope works). **Using mirrors** (to explain how mirrors are helpful).	**Making connections: How reflective are space blankets?** **Investigating space blankets - Planning** (to revise the units Earth and space and Properties and changes). **Investigating space blankets – Gathering data** (to revise the unit Circulation and health). **Investigating space blankets – Analysing, concluding and evaluating** (to revise the unit Light and shadows). **Investigating space blankets – Extending** (to revise unit Mixtures and separation). **Investigating space blankets – Presenting** (to revise key concepts).

Year 5/6 Cycle B					
Living things: Life cycles and reproduction **Life cycles and reproduction in plants** (to describe the life cycle of a plant, including the reproductive stage). **Life cycle of a mammal** (to describe the life cycle of a mammal). **Life cycle of a bird** (to describe the life cycle of a bird and compare it with that of a mammal). **Life cycle of an amphibian** (to describe the life cycle of an amphibian). **Life cycle of an insect** (to describe the life cycle of an insect and compare it with that of an amphibian). **Asexual reproduction in plants** (to describe asexual reproduction in plants).	**Forces and space: Unbalanced forces** **Gravity** (to describe gravity and its effects). **Air resistance** (to describe air resistance and its effects). **Water resistance** (to describe water resistance and its effects). **Friction** (to describe friction and its effects). **Levers, pulleys and gears (Part 1)** (to describe the effects of levers, pulleys and simple machines on movement). **Levers, pulleys and gear (Part 2)** (to describe the relationship between lever length and effort).	**Living things: Classifying big and small** **Carl Linnaeus and classification** (to explain how organisms are classified using the Linnaean system). **Cold-blooded vertebrates** (to classify the cold-blooded vertebrate groups using their common characteristics). **Warm-blooded vertebrates** (to classify the warm-blooded vertebrate groups using their common characteristics). **Invertebrates** (to classify invertebrates using their characteristics). **Plants** (to describe how the plant kingdom is organised, based on shared characteristics). **Micro-organisms** (to describe and classify micro-organisms).	**Energy: Circuits, batteries and switches** **Components and circuits** (to use recognized symbols for electrical components). **Circuit diagrams** (to predict and present results for electrical circuits). **Current and resistance** (to recognise a link between the number of components and resistance). **Batteries and voltage** (to identify ways to change voltage within an electrical circuit). **Voltage and bulb brightness** (to investigate how voltage affects bulb brightness). **Practical circuits** (to apply knowledge of circuits and components to a practical solution).	**Living things: Evolution and inheritance** **Variation** (to explain why there are differences within a species). **Inheritance** (to recognise the inheritance of characteristics in plants and animals). **Adaptations** (to explain why adaptation is necessary). **Modelling natural selection** (to model how natural selection affects population size). **Evolution** (to describe the theory of evolution). **Evidence for evolution** (to recognise evidence that can be used for evolution).	**Animals including humans: Human timeline** **Growing old** (to describe how humans change from babies through to old age). **Puberty** (to identify changes in males and females as a result of puberty). **Comparing human gestation** (to explore the gestation periods of humans and other animals). **Making connections: How does light affect the direction of plant growth?** **Investigating plant growth – Planning** (to revise the units Life cycles and reproduction, Circuits, batteries and switches and Unbalanced forces). **Investigating plant growth – Gathering data** (to revise the units Classifying big and small and Evolution and inheritance). **Investigating plant growth – Analysing, concluding and evaluating** (to revise the units Evolution and inheritance and Unbalanced forces).

How is the science scheme of work organised?



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Year 1/2 Cycle A				
Introduction to plants	Seasonal changes	Habitats	Life cycles and health	Plant growth
To know a variety of common plants, and how they differ. To know that deciduous trees lose their leaves seasonally, but evergreen trees do not. To know the basic structure (including leaves, flowers (blossom), fruit, roots, bulb, seed, trunk, branches, stem) of a variety of common plants, including flowering plants and trees. To begin to understand how plants grow and change over time.	To know the name and order of the four seasons; spring, summer, autumn and winter. To know that it is unsafe to look directly at the Sun. To know weather associated with the four seasons and how it changes (in the UK). To understand that day length varies across the four seasons, with fewer daylight hours in the winter and more in the summer.	To know a variety of plants and animals and describe some differences. To know that a habitat is the environment where an animal or plant lives/grows, because it provides what they need to survive. To know that a micro-habitat is a very small habitat (e.g. stones, logs and leaf litter). To know that living things depend upon each other (e.g. for food, shelter.) To begin to understand some of the life processes, including movement, reproduction, sensitivity, growth, excretion and nutrition. To know the difference between things that are living, dead, and things that have never been alive, using some of the life processes. To name a variety of habitats, including woodland, ocean, rainforest and coastal. To understand that a food chain can be used to show how animals obtain food from eating either plants and/or other animals.	To understand how living things change, and that animals have offspring that grow into adults. To know which offspring comes from which parent animal. To know the stages in some animal life cycles. To know that animals, including humans, need water, food and air to survive. To understand the importance of exercise, a balanced diet and hygiene for humans.	To know that seeds and bulbs grow into seedlings by producing roots and shoots. To know that seedlings grow into mature plants by developing parts such as roots, stems, leaves and flowers. To know that seeds need water and warmth to germinate. To know that plants need water, light and a suitable temperature for growth and health.

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Year 1/2 Cycle A		Introduction to plants	Seasonal changes	Habitats	Life cycles and health	Plant growth	Making connections: Ocean protectors
Posing questions	Exploring the world around them and raising their own simple questions.	✔	✔	✔		✔	✔
	Recognising there are different types of enquiry (ways to answer a question).	✔		✔	✔	✔	✔
	Responding to suggestions on how to answer questions.	✔				✔	
Planning	Beginning to recognise whether a planned test is fair.					✔	✔
	With support, deciding if suggested observations are suitable.	✔				✔	
	Ordering a simple method.	✔					✔
Predicting	Suggesting what might happen, often justifying with personal experience.	✔	✔			✔	✔

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Year 1/2 Cycle A		Introduction to plants	Seasonal changes	Habitats	Life cycles and health	Plant growth	Making connections: Ocean protectors
Observing (qualitative data)	Using their senses to describe, in simple terms, what they notice or what has changed.	✓	✓			✓	✓
Measuring (quantitative data)	Using non-standard units to measure and compare.	✓					
	Beginning to use standard units and read simple scales to measure and compare.				✓	✓	
	Beginning to use simple measuring equipment to make approximate measurements.				✓	✓	
Researching	Gathering specific information from one simplified, specified source.	✓	✓	✓	✓		
Recording (diagrams)	Drawing and labelling simple diagrams.	✓				✓	
Recording (tables)	Using a prepared table to record results including: • Numbers. • Simple observations. • Tally frequency.	✓	✓	✓	✓	✓	✓
Grouping and classifying	Grouping based on visible characteristics.	✓		✓			✓
	Organising questions to create a simple classification key.	Covered in Cycle B					

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Year 1/2 Cycle A		Introduction to plants	Seasonal changes	Habitats	Life cycles and health	Plant growth	Making connections: Ocean protectors
Graphing	Representing data using pictograms and block graphs.		✔				✔
Analysing and drawing conclusions.	Using their results to answer simple questions.	✔	✔		✔	✔	✔
	Beginning to recognise when results or observations do not match their predictions.	✔				✔	✔

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Year 1/2 Cycle B

Sensitive bodies	Everyday materials	Comparing animals	Uses of everyday materials	Micro-habitats
To know key parts of the human body (including head, neck, arms, elbows, legs, knees, face, ears, eyes, hair, mouth, teeth). To know the five main senses: sight, smell, hearing, taste and touch. To know that eyes are used for sight, the nose is used for smell, ears are used for hearing, the tongue and mouth are used for taste and the skin is used for touch.	To know that objects are items or things. To know that a material is what an object is made from. To identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock. To know that property refers to how a material can be described. To describe the physical properties of a variety of everyday materials. To understand that materials can be grouped based on their physical properties.	To know the main body parts of common animals (arms, legs, wings, tails, fins, head, trunk, horns/tusks, shell) To know a variety of common animals (including fish, amphibians, reptiles, birds and mammals). To know that a carnivore is an animal that eats other animals and give some examples. To know that a herbivore is an animal that eats only plants and give some examples. To know that an omnivore is an animal that eats both animals and plants, and give some examples.	To know why objects are made from particular materials and to give examples of their suitability. To know that one material can be used for a range of purposes (and to give examples.) To know that different materials can be used for the same purpose (and to give examples.) To know why certain materials are unsuitable for particular objects. To know that a push or pull must be applied to change the shape of a solid object. To know that solid objects can be squashed, bent, twisted or stretched. To know that different solid objects may take a different amount of force to change shape.	To know a variety of plants and animals and describe some differences. To know that a habitat is the environment where an animal or plant lives/grows, because it provides what they need to survive. To know that a micro-habitat is a very small habitat (e.g. stones, logs and leaf litter). To know that living things depend upon each other (e.g. for food, shelter.)

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Year 1/2 Cycle B		Sensitive bodies	Everyday materials	Comparing animals	Uses of everyday materials	Micro-habitats	Making connections: Fairytale science
Posing questions	Exploring the world around them and raising their own simple questions.					✓	
	Recognising there are different types of enquiry (ways to answer a question).	✓		✓	✓	✓	✓
	Responding to suggestions on how to answer questions.		✓	✓		✓	
Planning	Beginning to recognise whether a planned test is fair.		✓				✓
	With support, deciding if suggested observations are suitable.		✓	✓		✓	✓
	Ordering a simple method.					✓	✓
Predicting	Suggesting what might happen, often justifying with personal experience.		✓			✓	✓

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Year 1/2 Cycle B		Sensitive bodies	Everyday materials	Comparing animals	Uses of everyday materials	Micro-habitats	Making connections: Fairytale science
Observing (qualitative data)	Using their senses to describe, in simple terms, what they notice or what has changed.	✓	✓	✓		✓	✓
Measuring (quantitative data)	Using non-standard units to measure and compare.	✓			✓		✓
	Beginning to use standard units and read simple scales to measure and compare.						✓
	Beginning to use simple measuring equipment to make approximate measurements.						✓
Researching	Gathering specific information from one simplified, specified source.					✓	✓
Recording (diagrams)	Drawing and labelling simple diagrams.	✓		✓			
Recording (tables)	Using a prepared table to record results including: • Numbers. • Simple observations. • Tally frequency.	✓	✓		✓	✓	✓
Grouping and classifying	Grouping based on visible characteristics.	✓	✓	✓	✓	✓	
	Organising questions to create a simple classification key.					✓	

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Year 1/2 Cycle B		Sensitive bodies	Everyday materials	Comparing animals	Uses of everyday materials	Micro-habitats	Making connections: Fairytale science
Graphing	Representing data using pictograms and block graphs.			✓	✓		✓
Analysing and drawing conclusions.	Using their results to answer simple questions.	✓	✓	✓	✓	✓	✓
	Beginning to recognise when results or observations do not match their predictions.		✓			✓	

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Year 3/4 Cycle A

Light and shadows	Movement and nutrition	Rocks and soil	Digestion and food	Electricity and circuits
To know that light travels from a source (e.g. the Sun, light bulbs and torches). To know that light is needed to see things and that dark is the absence of light. To know that light from the Sun can be dangerous and how to protect their eyes. To know that materials reflect light. To know that shadows are formed when the light from a light source is blocked by an opaque object. To know that shadows change as a result of different factors: - Changing the position of the light source. - Changing the distances between the light source, object and surface. To know that shadows change position and length throughout the day as the Sun changes position in the sky.	To know that animals can be grouped based on the presence of a skeleton. To know that the skeleton in humans and some animals is used for movement, protection and support. To know that the muscular system in humans and some animals works with the skeleton for movement. To know the main bones in the body. To know that animals, including humans, need the right types and amount of nutrition. To understand that humans cannot make their own food and therefore eat to get the nutrition needed. To know the main food groups (carbohydrates, protein, fats, fibre, vitamins, minerals and water) and their simple functions. To know that a balanced diet should include all food groups. To describe the diets of different animals.	To know that rocks can be grouped based on their appearance or properties, (e.g. colour, texture, hardness, permeability.) To know that rocks may contain grains, crystals or fossils. To know that grains and crystals appear differently and can be used to classify rocks. To know that soils are made from rocks and dead matter. To understand the relationship between the properties of rocks and their uses. To know that fossils can form from the remains of living things. To know that rocks can change over time (e.g. erosion, weathering).	To know the main organs of the human digestive system (mouth, teeth, tongue, oesophagus, stomach, small and large intestines) and describe their simple functions. To know the different types of human teeth (incisor, canine, premolar and molar) and their simple functions. To know that teeth can be damaged, including the effect of sugary and acidic food. To know that it is important to brush teeth twice a day, make good food choices and visit the dentist regularly. To describe the teeth of carnivores and herbivores, and understand why they are different. To know that predators hunt for their food and prey are the animals being hunted. To know that producers make their own food. To know that food chains begin with a producer followed by consumers, and arrows to show the energy passed on.	To know that all electrical appliances need a power source, including batteries or mains electricity. To know that an electrical circuit needs a complete path for the electric charge to flow through. To know the main components in a simple series circuit. To know the precautions for working safely with electricity. To know that some materials allow electric charge to pass through them easily and these are known as electrical conductors (e.g. metals). To know that some materials do not allow electric charge to pass through them and these are known as electrical insulators (e.g wood and plastic). To know that metals are used for cables and wires because they are good conductors of electricity. To know that plastic is used to cover cables and wires because it is a good insulator. To understand that an open switch breaks a series circuit so the components will be off. To understand that a closed switch completes a series circuit so the components will be on. To understand the relationship between bulb brightness and the number of cells in a circuit.

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Year 3/4 Cycle A		Light and shadows	Movement and nutrition	Rocks and soil	Digestion and food	Electricity and circuits	Making connections: How does food affect muscle fatigue?
Posing questions	Beginning to raise further questions during the enquiry process.	✓			✓		✓
	Considering what makes a testable question.	✓				✓	
	Beginning to recognise that there are different types of enquiry and that they are suitable for different questions.	✓			✓	✓	
	Beginning to make suggestions about how different questions could be answered	✓				✓	
Planning	Beginning to select from options which variables will be changed, measured and controlled.				✓	✓	✓
	Beginning to suggest what observations to make and how long to make them for.	Covered in Cycle B					
	Planning a simple method, verbally and in writing.					✓	
	Beginning to write a simple method in numbered steps.					✓	
	Selecting and beginning to decide what simple equipment might be used to aid observations and measurements.					✓	
Predicting	Making predictions about what they think will happen by: • Using scientific knowledge and/or personal experience to explain their prediction (because…) • Beginning to consider cause and effect when making predictions, where appropriate. • Predicting a trend by considering how the changing variable will affect the measured variable. (The smoother the surface, the longer the distance the car will travel)			✓			✓

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Year 3/4 Cycle A		Light and shadows	Movement and nutrition	Rocks and soil	Digestion and food	Electricity and circuits	Making connections: How does food affect muscle fatigue?
Observing (qualitative data)	Using their senses to describe, in more detail and with simple scientific vocabulary, what they notice or what has changed.	✓		✓	✓	✓	
Measuring (quantitative data)	Using standard units to measure and compare.	✓	✓		✓		✓
	Using measuring equipment with increasing accuracy.	✓	✓		✓		✓
	Reading scales with unmarked intervals between numbers.	✓	✓				✓
Researching	Gathering specific information from a variety of sources.		✓	✓			✓
Recording (diagrams)	Beginning to draw more scientific diagrams by: • Using some standard symbols. • Drawing in 2D to produce simple line diagrams. • Labelling with more scientific vocabulary.			✓		✓	
Recording (tables)	Using a prepared table to record results including more detailed observations.	✓	✓		✓	✓	✓
	Using tables with more than two columns.	✓			✓	✓	✓
	Identifying and adding headings to tables.	✓				✓	✓
	Beginning to design simple results tables.	✓			✓		✓
Grouping and classifying	Grouping based on visible characteristics and measurable properties.	✓	✓	✓	✓	✓	
	Populating a pre-prepared branching and number key.	Covered in Cycle B					
	Choosing appropriate questions for classification keys.	Covered in Cycle B					

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Year 3/4 Cycle A		Light and shadows	Movement and nutrition	Rocks and soil	Digestion and food	Electricity and circuits	Making connections: How does food affect muscle fatigue?
Graphing	Representing data using bar charts.			✓			✓
	Drawing bars with greater accuracy.			✓			✓
	Reading the value of bars with greater accuracy.	✓		✓			✓
Analysing and drawing conclusions.	Writing a conclusion to summarise findings using simple scientific vocabulary.	✓		✓	✓	✓	✓
	Beginning to suggest how one variable may have affected another.	✓			✓	✓	✓
	Beginning to quote results as evidence of relationships.	✓			✓		✓
	Identifying data that does not fit a pattern (anomalous data).	✓			✓		✓
	Recognising when results or observations do not match their predictions.	✓					✓
	Beginning to use identified patterns to predict new values or trends.	✓		✓		✓	
Evaluating	Beginning to identify steps in the method that need changing and suggest improvements.	✓			✓		✓
	Identifying which variables were difficult to control and suggesting how to better control them.	✓			✓		✓
	Commenting on the degree of trust by reflecting on: • Results that do not fit a pattern (anomalies). • The quality of results (accurate measurements and maintaining control variables).	✓			✓		✓
	Beginning to identify new questions that would further the enquiry.	✓			✓		✓

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Year 3/4 Cycle B

Forces and magnets	States of matter	Sound and vibrations	Classification and changing habitats	Plant reproduction
To know some examples of contact and non-contact forces. To know that some forces are a result of contact between two surfaces, but some forces can act at a distance (e.g. magnetism). To know the North and South poles of a magnet. To know some examples of magnetic materials, including iron and nickel, and how they react to a magnet and each other. To know some different examples of magnets, including bar, horseshoe, button and ring, To know some uses of magnets. To know that friction is a contact force that acts between two surfaces to slow an object down. To know that magnetism is a non-contact force that affects objects containing magnetic metal. To understand that the opposite poles of a magnet attract one another and like poles repel one another. To know that rougher surfaces have more friction between them than smoother surfaces. To understand that the strength of different magnets may vary.	To know that all substances around us can exist as solids, liquids and gases To know that a property of a solid is that it keeps its shape unless a force is applied to it. To know that a property of a liquid can flow freely and take on the shape of a container. To know that a property of a gas does not have a fixed shape and can escape from an unsealed container. To know that heating causes solids to turn into liquids (melting) and liquids to turn into gases (evaporating). To know that cooling causes gases to turn into liquids (condensing) and liquids to turn into solids (freezing). To know that water can exist as a solid, a liquid or a gas. To know that the melting point of water is zero degrees Celsius and the boiling point of water is 100 degrees Celsius. To know that water flows around the world in a continuous process called the water cycle. To know that in the water cycle, evaporation is when bodies of water are heated and turn into water vapour. To know that in the water cycle, condensation is the process of water vapour cooling to form water droplets in clouds, which can result in precipitation. *To know that the rate of evaporation increases as temperature rises.	To understand that sound is a result of vibrations. To know that vibrations from sounds travel through mediums to the ear. To know that an insulating material reduces the amount of vibrations that pass through it and this can be used to protect the ears from damaging sounds. To know that different materials provide different amounts of insulation against sound. To know a variety of ways to change the pitch or volume of a sound. To know that quicker vibrations cause higher-pitched sounds and slower vibrations cause lower-pitched sounds. To know that stronger vibrations cause louder sounds and weaker vibrations cause quieter sounds. To know that sounds get fainter as the distance from the sound source increases.	To know that living things can be grouped in different ways. To know that a classification key can be used to group and identify plants and animals. To know that vertebrates are animals which have a backbone and invertebrates are animals which do not have a backbone. To know that plants can be grouped into flowering or non-flowering varieties. To know that flowering plants include grasses and non-flowering plants includes ferns and mosses. To know that there are five main vertebrate groups: birds, mammals, reptiles, amphibians and fish. To know that invertebrate groups include snails, slugs, worms, spiders and insects. To know that habitats can change throughout the year and this can be dangerous for living things. To know that humans can have both a positive and negative impact on the environment.	To understand the functions of the basic parts of a plant and the relationship between structure and function. To know that water is transported within a plant from the root, through the stem, to the leaves. To know that plants need water, light, air, nutrients/fertilizer and a suitable temperature for growth and health. To understand that the needs for growth and health vary from plant to plant. To know the life cycle of a plant from seed to mature plant. To know that flowers are the reproductive organ of a plant. To know that the process of pollination is the transfer of pollen to the female (part of the) flower. To know that the process of seed formation is the growth of a seed after pollination/fertilisation. To know some different methods of seed dispersal and the benefits of each.

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Year 3/4 Cycle B		Forces and magnets	States of matter	Sound and vibrations	Classification and changing habitats	Plant reproduction	Making connections: How does wind force affect seed dispersal?
Posing questions	Beginning to raise further questions during the enquiry process.					✓	✓
	Considering what makes a testable question.		✓			✓	
	Beginning to recognise that there are different types of enquiry and that they are suitable for different questions.					✓	✓
	Beginning to make suggestions about how different questions could be answered		✓			✓	✓
Planning	Beginning to select from options which variables will be changed, measured and controlled.	✓		✓			✓
	Beginning to suggest what observations to make and how long to make them for.					✓	✓
	Planning a simple method, verbally and in writing.	✓				✓	✓
	Beginning to write a simple method in numbered steps.	✓					
	Selecting and beginning to decide what simple equipment might be used to aid observations and measurements.					✓	✓
Predicting	Making predictions about what they think will happen by: • Using scientific knowledge and/or personal experience to explain their prediction (because…) • Beginning to consider cause and effect when making predictions, where appropriate. • Predicting a trend by considering how the changing variable will affect the measured variable. (The smoother the surface, the longer the distance the car will travel)		✓				✓

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Year 3/4 Cycle B		Forces and magnets	States of matter	Sound and vibrations	Classification and changing habitats	Plant reproduction	Making connections: How does wind force affect seed dispersal?
Observing (qualitative data)	Using their senses to describe, in more detail and with simple scientific vocabulary, what they notice or what has changed.		✓	✓	✓	✓	✓
Measuring (quantitative data)	Using standard units to measure and compare.		✓			✓	✓
	Using measuring equipment with increasing accuracy.		✓				✓
	Reading scales with unmarked intervals between numbers.		✓			✓	✓
Researching	Gathering specific information from a variety of sources.	✓	✓	✓	✓		
Recording (diagrams)	Beginning to draw more scientific diagrams by: ● Using some standard symbols. ● Drawing in 2D to produce simple line diagrams. ● Labelling with more scientific vocabulary.	✓	✓			✓	✓
Recording (tables)	Using a prepared table to record results including more detailed observations.				✓	✓	✓
	Using tables with more than two columns.				✓	✓	✓
	Identifying and adding headings to tables.					✓	✓
	Beginning to design simple results tables.					✓	✓
Grouping and classifying	Grouping based on visible characteristics and measurable properties.				✓		✓
	Populating a pre-prepared branching and number key.				✓		
	Choosing appropriate questions for classification keys.				✓		

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Year 3/4 Cycle B		Forces and magnets	States of matter	Sound and vibrations	Classification and changing habitats	Plant reproduction	Making connections: How does wind force affect seed dispersal?
Graphing	Representing data using bar charts.	✓		✓		✓	✓
	Drawing bars with greater accuracy.			✓		✓	✓
	Reading the value of bars with greater accuracy.			✓			✓
Analysing and drawing conclusions.	Writing a conclusion to summarise findings using simple scientific vocabulary.	✓	✓			✓	✓
	Beginning to suggest how one variable may have affected another.	✓				✓	✓
	Beginning to quote results as evidence of relationships.	✓				✓	✓
	Identifying data that does not fit a pattern (anomalous data).					✓	✓
	Recognising when results or observations do not match their predictions.			✓		✓	✓
	Beginning to use identified patterns to predict new values or trends.		✓			✓	✓
Evaluating	Beginning to identify steps in the method that need changing and suggest improvements.					✓	✓
	Beginning to identify which variables were difficult to control and suggesting how to better control them.					✓	✓
	Commenting on the degree of trust by reflecting on: • Results that do not fit a pattern (anomalies). • The quality of results (accurate measurements and maintaining control variables).					✓	✓
	Beginning to identify new questions that would further the enquiry.					✓	✓

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Year 5/6 Cycle A

Mixtures and separation	Properties and changes	Earth and space	Circulation and health	Light and reflection
To know that some substances will dissolve in a liquid to form a solution. To know the factors that affect the rate of dissolving, including temperature and stirring. To know that some liquids and solids can be separated using sieving, filtering and evaporation and to describe these processes.	To describe a broader range of materials and their properties, including hardness, solubility, transparency, conductivity and response to magnets. To understand that dissolving, mixing and changes of state are reversible changes. To understand that some changes result in the formation of new materials and that these are usually irreversible. (e.g. burning, rusting, the action of acid on bicarbonate of soda.)	To know that the Sun is a star at the centre of our solar system. To know that the Sun, Earth and Moon are approximately spherical bodies. To know the names, order and relative positions of the planets and other main celestial bodies. To know that a moon is a celestial body that orbits a planet and give examples of moons that orbit other planets. To know that the Earth and other planets orbit around the Sun. To know that the tilt of the Earth and its orbit around the Sun causes the seasons. To know that the Moon orbits around the Earth. To understand how the Earth's rotation causes day and night and the apparent movement of the Sun across the sky.	To know the main parts of the human circulatory system (heart, blood vessels and blood). To know that the heart pumps blood around the body. To know that the blood vessels transport blood around the body. To know that the blood transports vital substances around the body, including oxygen and nutrients. To understand the relationships between different organ systems. To understand the impact of diet, exercise, drugs and lifestyle on the way a body functions. To know that the heart rate is the number of beats per minute. To know that exercise increases heart rate.	To know that light travels in a straight line from a light source. To understand that luminous objects are seen as a result of light directly entering the eye, whereas non-luminous objects reflect light into the eye. To know that shiny surfaces reflect light uniformly. To know that when light is reflected off a surface, its direction changes. To know that mirrors and periscopes work using reflection of light on smooth surfaces. To understand why shadows have the same shape as the objects that cast them as a result of light travelling in straight lines. To understand relationships between light sources, objects and shadows. To understand how and why the distance between the object and the screen affects the size of the shadow. To understand how the angle of a reflected ray is affected by the angle of the incoming ray, when reflected from a plane surface.

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Year 5/6 Cycle A		Mixtures and separation	Properties and changes	Earth and space	Circulation and health	Light and reflection	Making connections: How reflective are space blankets?
Posing questions	Raising questions throughout the enquiry process.			✓		✓	✓
	Identifying testable questions.			✓		✓	
	Selecting the most appropriate enquiry method to answer questions and give justification.	✓		✓		✓	✓
Planning	Suggesting which variables will be changed, measured and controlled.	✓			✓	✓	✓
	Making and explaining decisions about what observations to make and how long to make them for.	✓			✓		✓
	Writing a method including detail about how to ensure control variables are kept the same.		✓		✓		
	Writing a method that considers reliability by planning repeated readings.				✓		
	Suggesting the most appropriate equipment to make observations and measurements and justifying their choices.		✓		✓		
Predicting	Making increasingly scientific predictions by: ● Using previous scientific knowledge and evidence to inform their predictions. ● Using scientific language to describe a potential outcome or explain why they think something will happen. ● Making links between topics to evidence a prediction.		✓	✓	✓	✓	✓

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Year 5/6 Cycle A		Mixtures and separation	Properties and changes	Earth and space	Circulation and health	Light and reflection	Making connections: How reflective are space blankets?
Observing (qualitative data)	Using their senses to describe, in detail and with a broader range of scientific vocabulary, what they notice or what has changed.	✓			✓		
Measuring (quantitative data)	Using standard units to measure and compare with increasing precision (decimals).		✓	✓	✓		✓
	Reading a wider variety of scales with unmarked intervals between numbers.			✓	✓	✓	✓
Researching	Gathering answers to open-ended questions from a variety of sources.	✓			✓		✓
Recording (diagrams)	Drawing scientific diagrams by: • Using a wider range of standard symbols. • Drawing with increasing accuracy. • Labelling with a broader range of scientific vocabulary. • Annotating diagrams to explain concepts and convey opinions.	✓		✓		✓	
Recording (tables)	Using tables with columns that allow for repeat readings.				✓	✓	✓
	Suggesting headings to tables, including units.		✓	✓	✓		✓
	Designing results tables with increasing independence with consideration of variables where applicable.		✓	✓			✓
	Calculating the mean average.				✓	✓	✓
Grouping and classifying	Grouping in a broader range of contexts.	Covered in Cycle B					
	Organising the layout of number and branching keys.	Covered in Cycle B					
	Formulating appropriate questions for classification keys.	Covered in Cycle B					

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Year 5/6 Cycle A		Mixtures and separation	Properties and changes	Earth and space	Circulation and health	Light and reflection	Making connections: How reflective are space blankets?
Graphing	Representing data by using line graphs and scatter graphs.				✓	✓	✓
	Plotting points with greater accuracy.				✓	✓	✓
	Reading the value of plotted points with greater accuracy.			✓	✓		✓
Analysing and drawing conclusions	Recognise the following across a broader range of contexts and in more complexity: ● Naturally occurring patterns and relationships. ● Making comparisons to group and classify. ● Changes over time. ● Relevant secondary data.				✓	✓	✓
	Writing a conclusion to summarise findings using increasingly complex scientific vocabulary.			✓	✓	✓	✓
	Suggesting with increasing independence how one variable may have affected another.		✓		✓	✓	✓
	Quoting relevant data as evidence of relationships.		✓	✓	✓	✓	✓
	Identifying anomalies in repeat data and excluding results where appropriate.				✓	✓	✓
	Comparing individual, class and/or model data to the prediction and recognising when they do not match.				✓	✓	✓
	Using identified patterns to predict new values or trends.			✓	✓	✓	
Evaluating	Identifying steps in the method that need changing and suggesting improvements.	Covered in Cycle B					
	Identifying which variables were difficult to control and suggesting how to better control them.					✓	✓
	Commenting on the degree of trust by also reflecting on: ● Accuracy (human error with equipment). ● Reliability (repeating results). ● Sources of information (e.g. websites, books).		✓		✓	✓	
	Deciding what data to collect to further test direct relationships.	Covered in Cycle B					

Year 5/6 Cycle B

Life cycles and reproduction	Unbalanced forces	Classifying big and small	Circuits, batteries and switches	Evolution and inheritance	Human timeline
To know that a life cycle shows the changes an animal or plant goes through until the reproduction of a new generation when the cycle starts again. To know that all living things must reproduce for the species to survive. To know that sexual reproduction requires two parents, whereas asexual reproduction only requires one parent. To know that there are different processes plants and animals use to reproduce (asexual and sexual reproduction).	To know that gravity is a non-contact force that pulls objects together. To know that air resistance and water resistance are both types of friction. To know that unsupported objects fall towards the Earth because of gravity. To know that friction, air resistance and water resistance act in the opposite direction to a moving object. To know that when forces are imbalanced, the speed, shape or direction of an object changes. To know that when forces are balanced the speed, shape or direction of an object stays the same. To know that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect. To know that rougher surfaces have more friction between them than smoother surfaces and how that may affect movement. To know that the larger the surface area of an object the greater the air or water resistance it creates.	To know that 'organism' is a term used to refer to an individual living thing. To know that micro-organisms are organisms that are incredibly small and cannot usually be seen by the naked eye. To know the characteristics of the different groups of vertebrate and commonly found invertebrates.	To know a wider variety of components in a series circuit (including buzzer and motor). To know the conventions used to draw circuit diagrams, including the recognised symbols for common components and using straight lines. To know that the voltage of a circuit can be changed and how this affects bulb brightness (or buzzer volume).	To know that living things have changed over time. To know that fossils provide us with information about living things that inhabited the Earth millions of years ago. To know that characteristics are passed from parents to their offspring, but that all offspring vary from their parents. To know that over time, variation in offspring can affect animals' chances of survival in particular environments. To know that animals and plants have adapted to suit their environment over many millions of years and that this process can be called evolution.	To describe the human life cycle, including the stages of growth and development (baby, toddler, child, teenager, adult, elderly). To describe changes that occur during puberty (in boys and girls). To know that gestation periods vary across mammals.

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Year 5/6 Cycle B		Life cycles and reproduction	Unbalanced forces	Classifying big and small	Circuits, batteries and switches	Evolution and inheritance	Human timeline	Making connections: How does light affect the direction of plant growth?
Posing questions	Raising questions throughout the enquiry process.	✓						✓
	Identifying testable questions.	✓						
	Selecting the most appropriate enquiry method to answer questions and give justification.	✓				✓		✓
Planning	Suggesting which variables will be changed, measured and controlled.	✓	✓		✓			✓
	Making and explaining decisions about what observations to make and how long to make them for.	✓	✓		✓			✓
	Writing a method including detail about how to ensure control variables are kept the same.		✓		✓			
	Writing a method that considers reliability by planning repeated readings.		✓		✓			
	Suggesting the most appropriate equipment to make observations and measurements and justifying their choices.	✓	✓		✓			
Predicting	Making increasingly scientific predictions by: • Using previous scientific knowledge and evidence to inform their predictions. • Using scientific language to describe a potential outcome or explain why they think something will happen. • Making links between topics to evidence a prediction.	✓			✓		✓	✓

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Year 5/6 Cycle B		Life cycles and reproduction	Unbalanced forces	Classifying big and small	Circuits, batteries and switches	Evolution and inheritance	Human timeline	Making connections: How does light affect the direction of plant growth?
Observing (qualitative data)	Using their senses to describe, in detail and with a broader range of scientific vocabulary, what they notice or what has changed.	✓		✓	✓	✓		✓
Measuring (quantitative data)	Using standard units to measure and compare with increasing precision (decimals).				✓			
	Reading a wider variety of scales with unmarked intervals between numbers.				✓			
Researching	Gathering answers to open-ended questions from a variety of sources.	✓						✓
Recording (diagrams)	Drawing scientific diagrams by: • Using a wider range of standard symbols. • Drawing with increasing accuracy. • Labelling with a broader range of scientific vocabulary. • Annotating diagrams to explain concepts and convey opinions.		✓		✓			
Recording (tables)	Using tables with columns that allow for repeat readings.		✓		✓	✓		✓
	Suggesting headings to tables, including units.		✓		✓			✓
	Designing results tables with increasing independence with consideration of variables where applicable.		✓		✓			✓
	Calculating the mean average.		✓		✓	✓		
Grouping and classifying	Grouping in a broader range of contexts.			✓		✓		
	Organising the layout of number and branching keys.			✓				
	Formulating appropriate questions for classification keys.			✓				

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Year 5/6 Cycle B		Life cycles and reproduction	Unbalanced forces	Classifying big and small	Circuits, batteries and switches	Evolution and inheritance	Human timeline	Making connections: How does light affect the direction of plant growth?
Graphing	Representing data by using line graphs and scatter graphs.	✓	✓				✓	
	Plotting points with greater accuracy.	✓	✓				✓	
	Reading the value of plotted points with greater accuracy.	✓	✓				✓	
Analysing and drawing conclusions.	Recognise the following across a broader range of contexts and in more complexity: ● Naturally occurring patterns and relationships. ● Making comparisons to group and classify. ● Changes over time. ● Relevant secondary data.				✓	✓		✓
	Writing a conclusion to summarise findings using increasingly complex scientific vocabulary.	✓	✓		✓	✓	✓	✓
	Suggesting with increasing independence how one variable may have affected another.	✓	✓		✓	✓	✓	✓
	Quoting relevant data as evidence of relationships.	✓	✓		✓	✓	✓	✓
	Identifying anomalies in repeat data and excluding results where appropriate.		✓		✓	✓	✓	✓
	Comparing individual, class and/or model data to the prediction and recognising when they do not match.	✓	✓		✓	✓		✓
	Using identified patterns to predict new values or trends.	✓			✓		✓	✓
Evaluating	Identifying steps in the method that need changing and suggesting improvements.		✓		✓	✓		✓
	Identifying which variables were difficult to control and suggesting how to better control them.		✓		✓	✓		✓
	Commenting on the degree of trust by also reflecting on: ● Accuracy (human error with equipment). ● Reliability (repeating results). ● Sources of information (e.g. websites, books).		✓		✓	✓	✓	✓
	Deciding what data to collect to further test direct relationships.	✓				✓	✓	

EYFS (Reception)	Animal adventures	I am a scientist	Our beautiful planet	Changing seasons
To know about famous scientists throughout history.	✓	✓	✓	

Year 1/2 Cycle A	Introduction to plants	Seasonal changes	Habitats	Life cycles and health	Plant growth	Making connections: Ocean protectors
To know about famous scientists throughout history.	✓					✓
To know about a range of jobs and careers that use scientific knowledge and methods.	✓	✓				✓
To know about the work of modern day scientists.	✓					✓
To know about science in the news and recent discoveries.						
To know there are spiritual, moral, social and cultural links with Science.				✓	✓	✓

Year 1/2 Cycle B	Sensitive bodies	Everyday materials	Comparing animals	Uses of everyday materials	Micro-habitats	Making connections: Fairytale science
To know about famous scientists throughout history.			✓			
To know about a range of jobs and careers that use scientific knowledge and methods.	✓			✓	✓	
To know about the work of modern day scientists.	✓					
To know about science in the news and recent discoveries.				✓		
To know there are spiritual, moral, social and cultural links with Science.	✓			✓		✓

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Year 3/4 Cycle A	Light and shadows	Movement and nutrition	Rocks and soil	Digestion and food	Electricity and circuits	Making connections: How does food affect muscle fatigue?
To know about famous scientists throughout history.	✓	✓	✓	✓	✓	
To know about a range of jobs and careers that use scientific knowledge and methods.	✓	✓	✓	✓	✓	✓
To know about the work of modern day scientists.		✓		✓	✓	✓
To know about science in the news and recent discoveries.		✓				
To know there are spiritual, moral, social and cultural links with Science.	✓			✓		✓
To know about the methods and equipment used by scientists throughout history and how these have led to modern methods.	✓	✓		✓	✓	
To know how scientific knowledge has changed over time, leading to the current understanding of Science.	✓	✓		✓	✓	
To know about current scientific research and what it aims to achieve in the future.		✓				✓
To know that collaboration and peer reviewing are essential for effective scientific progress.	✓				✓	

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Year 3/4 Cycle B	Forces and magnets	States of matter	Sound and vibrations	Classification and changing habitats	Plant reproduction	Making connections: How does wind force affect seed dispersal?
To know about famous scientists throughout history.				✓		
To know about a range of jobs and careers that use scientific knowledge and methods.		✓	✓	✓		✓
To know about the work of modern day scientists.		✓		✓		✓
To know about science in the news and recent discoveries.		✓		✓		✓
To know there are spiritual, moral, social and cultural links with Science.		✓		✓		✓
To know about the methods and equipment used by scientists throughout history and how these have led to modern methods.	Covered in Cycle A					
To know how scientific knowledge has changed over time, leading to the current understanding of Science.		✓				
To know about current scientific research and what it aims to achieve in the future.		✓		✓		✓
To know that collaboration and peer reviewing is essential for effective scientific progress.		✓				

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Year 5/6 Cycle A	Mixtures and separation	Properties and changes	Earth and space	Circulation and health	Light and reflection	Making connections: How reflective are space blankets?
To know about famous scientists throughout history.			✓	✓	✓	
To know about a range of jobs and careers that use scientific knowledge and methods.				✓	✓	✓
To know about the work of modern day scientists.			✓		✓	✓
To know about science in the news and recent discoveries.			✓	✓		
To know there are spiritual, moral, social and cultural links with Science.				✓		
To know about the methods and equipment used by scientists throughout history and how these have led to modern methods.			✓	✓	✓	
To know how scientific knowledge has changed over time, leading to the current understanding of Science.			✓	✓	✓	✓
To know about current scientific research and what it aims to achieve in the future.			✓	✓		
To know that collaboration and peer reviewing is essential for effective scientific progress.			✓	✓	✓	
To know how scientific evidence is used to support or refute ideas or arguments.	Covered in Cycle B					
To know that mistakes can lead to new discoveries.			✓			

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Year 5/6 Cycle B	Life cycles and reproduction	Unbalanced forces	Classifying big and small	Circuits, batteries and switches	Evolution and inheritance	Human timeline	Making connections: How does light affect the direction of plant growth?
To know about famous scientists throughout history.					✓		
To know about a range of jobs and careers that use scientific knowledge and methods.	✓			✓	✓	✓	✓
To know about the work of modern day scientists.	✓				✓		
To know about science in the news and recent discoveries.	Covered in Cycle A						
To know there are spiritual, moral, social and cultural links with Science.					✓		
To know about the methods and equipment used by scientists throughout history and how these have led to modern methods.					✓		
To know how scientific knowledge has changed over time, leading to the current understanding of Science.				✓	✓		
To know about current scientific research and what it aims to achieve in the future.	✓						
To know that collaboration and peer reviewing are essential for effective scientific progress.					✓		
To know how scientific evidence is used to support or refute ideas or arguments.	✓				✓		
To know that mistakes can lead to new discoveries.	Covered in Cycle A						

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EYFS (Reception)			
Animal adventures	I am a scientist	Our beautiful planet	Changing seasons
Learning about job roles dedicated to animal care such as farmers or zoo keepers. Understanding how workers ensure animals are well fed and living in safe, clean environments.	Recognising that scientists are curious and ask questions and discovering a range of careers that depend on scientific knowledge.	Discovering that plants are used by scientists to create medicine and role-playing in the mud kitchen to mix their own plant-based remedies.	N/A

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Year 1/2 Cycle A

Introduction to plants	Seasonal changes	Habitats	Life cycles and health	Plant growth	Making connections: Ocean protectors
Recognising the benefits of scientific research into plants and learning about the work of Dr. Percy Julian who discovered how to make plant-based medicines.	Learning about the role of a weather reporter and how information about the weather is useful in everyday life.	**N/A**	Learning how to look after personal hygiene by washing themselves and their clothes. Investigating the benefits of exercise on health and wellbeing.	Recognising that certain job roles rely on understanding healthy plant growth. Exploring the impact of humans on plants in the environment.	Learning about the role of marine biologists, how inventions in the industry have changed scientific research over time and how they work to protect ocean wildlife.

Year 1/2 Cycle B

Sensitive bodies	Everyday materials	Comparing animals	Uses of everyday materials	Micro-habitats	Making connections: Fairytale science
Learning about visual impairment and the importance of continued research in this area. Recognising how firefighters use the senses when doing their job.	**N/A**	Learning about Jane Goodall's key findings when studying chimpanzees in the wild.	Learning about the harmful effects of certain materials and how to take responsibility for protecting the environment.	Learning about the role of a botanist including the importance of identification and classification when studying plants.	**N/A**

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Year 3/4 Cycle A

Light and shadows	Movement and nutrition	Rocks and soil	Digestion and food	Electricity and circuits	Making connections: How does food affect muscle fatigue?
Looking at how different scientists formed conclusions about light and that collaborative work can either support or refute these ideas. Exploring different jobs that consider light and shade and how light and shadows are used for entertainment in the arts.	Exploring scientific advances and how research has contributed to changes in prosthetics. Learning about different jobs that make use of scientific research.	Exploring the work of Mary Anning and modern day palaeontologists. Using the fossil record to make suggestions about the past.	Observing human anatomy in the past and ethical dilemmas. Exploring real observation methods by scientists and evidence collected. Determining why scientists need to work collaboratively and evaluate experiments. Exploring the work of naturalists and the evidence they use to study animals.	Exploring how multiple scientists have contributed to an invention. Suggesting why new inventions will change safety advice.	Learning about the job of a sports nutritionist and how they plan the diets of their athletes to optimise performance. Exploring how calorimeters are scientific devices used to measure the chemical energy stored in food.

Year 3/4 Cycle B

Forces and magnets	States of matter	Sound and vibrations	Classification and changing habitats	Plant reproduction	Making connections: How does wind force affect seed dispersal?
Exploring the uses of friction and magnets in everyday life and industry.	Researching how climate change affects the water cycle and the work of climate change scientists.	Researching how whales and dolphins communicate underwater to prove that sound travels faster and father in liquids than gases. Exploring the safe decibel range and jobs that require ear protection or sound proofing.	Researching how conservation issues are affecting the planet and what can be done to address them. Exploring the role of taxonomists and how they create classification keys. Discovering the importance of conservationists like Greta Thumberg and scientific communicators like Sir David Attenborough.	**N/A**	Learning about the work of botanists and why their research is so important. Exploring how biomimicry involves the understanding of plant and seed structure to inform product design.

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Year 5/6 Cycle A

Mixtures and separation	Properties and changes	Earth and space	Circulation and health	Light and reflection	Making connections: How reflective are space blankets?
Identifying real world examples of mixtures and how and why separation techniques are used to separate them, including some jobs that may use them. Learning about the importance of salt plains.	Linking the properties of materials to their real world uses. Using properties of materials to inform product design. Learning about spacesuit design. Linking the conditions that cause rusting to methods of prevention.	Considering the evidence used by Ptolemy and Copernicus in developing the geocentric and heliocentric models of the Solar System respectively. Using satellite data on climate change to make predictions about future temperature changes. Exploring the problems with space junk and designing a device to clear it.	Considering how health advice has changed over time and how some of the health information we have now requires further research (e.g. vaping). Exploring what modern stethoscopes are used for and how the design has evolved. Considering how understanding of the circulatory system has changed by looking at changing opinions of scientists and collaborative evidence is fundamental to our current knowledge and understanding.	Considering evidence that can be used to argue scientifically about a theory. Discussing the purpose and ethics of historical experiments and the conclusions drawn from the results. Discovering how scientific principles can be used for artwork, communication or decoration. Exploring different jobs and inventions that depend on reflection.	Learning about the development of space blankets by NASA, their original use and their subsequent uses in other areas such as first aid, sports and survival.

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Year 5/6 Cycle B

Life cycles and reproduction	Unbalanced forces	Classifying big and small	Circuits, batteries and switches	Evolution and inheritance	Human timeline	Making connections: How does light affect the direction of plant growth?
Looking at the work of biologists studying amphibians and how they are affected by climate change. Using their work to develop their own experiments. Discovering how gardeners and farmers use asexual reproduction in plants to their advantage to propagate their best plants.	Exploring the evidence used by Galileo and Newton that contributed towards the theory of gravity. Considering how air and water resistance inform aerodynamic design. Discovering how friction applies to braking systems.	Describing the work of Carl Linnaeus in developing the Linnaean and binomial systems. Understanding that modern science has added to and refined the Linnaean system.	Considering the importance of using standardised symbols by those working with electricity, such as electricians. Explaining how electrical switches can be used to protect users of hazardous electrical appliances. Using scientific knowledge to devise an appliance to solve a problem.	Considering evidence that can be used to argue scientifically about a theory. Exploring different kinds of evidence that can lead to the same conclusion. Understanding the role of peer review and choices in sources to improve the degree of trust in a conclusion. Exploring different jobs that look at changes to species over time, including naturalists like Darwin or Wallace and palaeontologists like Anning.	Looking at how plotted data can help medical professionals to determine healthy growth.	Learning about how farmers use phototropism to grow forced rhubarb and how this changes the taste.

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