Northbourne CE Primary School
Nurturing Excellence.

Science

Long Term Plan

Introduction

At the heart of our Science curriculum is our vision of Nurturing Excellence. We are committed to enabling every child to develop a deep and lasting understanding of the world around them through curiosity, enquiry and discovery. Through Science, pupils build knowledge, develop critical thinking skills and gain an appreciation of how science shapes our lives now and in the future.

Our curriculum is designed to ensure that all pupils know more and remember more as they progress through the school. It is carefully sequenced to develop both substantive knowledge (key scientific concepts) and disciplinary knowledge (how scientists work and think). Through this, pupils develop secure understanding, enabling them to make connections and apply their learning with increasing confidence.

Science plays a central role in developing thoughtful, inquisitive learners who are prepared to engage with an ever-changing and scientifically driven world. Through exploration and investigation, pupils develop curiosity, resilience and a sense of responsibility for the world around them.

Through our Science curriculum, pupils develop the knowledge, skills and attitudes needed to understand the world around them and their place within it. They leave Northbourne as curious, informed and reflective learners, equipped to continue their scientific journey and contribute positively to society in an increasingly scientific and technological world.

Our curriculum is built upon the National Curriculum for Science and is enriched through high-quality resources, including the Primary Science Teaching Trust (PSTT) and the Royal Society of Chemistry. These support a well-sequenced, knowledge-rich and enquiry-driven approach to teaching and learning.

Core Aims

Our Science curriculum is designed to ensure that all pupils:

- Develop secure scientific knowledge across biology, chemistry and physics
- Build strong enquiry and investigative skills through practical experiences
- Develop curiosity and a love of discovery about the natural and physical world
- Think critically, ask meaningful questions and solve problems
- Understand the uses and implications of science in everyday life and the wider world
- Communicate their understanding using accurate scientific vocabulary

Central to our approach is the principle of knowing more and remembering more. Key knowledge is revisited regularly, allowing pupils to strengthen understanding and retain learning over time.

Pupils are encouraged to think like scientists: to question, predict, test, observe and reflect. Through this, they develop independence, resilience and confidence in their ability to explore and explain the world around them.

Structure and Progression

Our Science curriculum is carefully structured across a two-year cycle and taught progressively through four phases:

1. Nursery and Reception
2. Key Stage 1
3. Lower Key Stage 2
4. Upper Key Stage 2

The curriculum ensures full coverage of the National Curriculum, with clear progression in both knowledge and skills. Units are mapped from Reception to Year 6 so that learning is revisited and deepened over time.

As pupils move through the school, they:

- Develop secure understanding of key scientific concepts
- Build on prior knowledge through carefully sequenced learning
- Engage in increasingly complex investigations
- Use scientific vocabulary with greater accuracy and confidence
- Apply their knowledge with increasing independence

This structured approach ensures that pupils develop depth in their understanding and are able to make meaningful connections across areas of learning.

Scientific Knowledge

Our Science curriculum provides pupils with a secure and coherent body of knowledge about the natural and physical world. This includes:

Biology: plants, animals including humans, living things and their habitats, and evolution and inheritance

Chemistry: materials and their properties, including changes and uses

Physics: forces, light, sound, electricity, Earth and space

Knowledge is carefully sequenced so that pupils build on prior learning. Early exploration of the world develops into more structured scientific understanding, and later into deeper conceptual knowledge.

Pupils learn how scientific ideas develop over time and how different areas of science are connected. By revisiting and applying knowledge in different contexts, they develop a secure and meaningful understanding of key concepts.

Working Scientifically

Alongside knowledge, pupils develop the disciplinary skills needed to think and work as scientists.

These skills progress across the school and include:

- Asking questions and making predictions
- Planning and carrying out investigations
- Observing, measuring and recording results
- Gathering, analysing and interpreting data
- Identifying patterns and relationships
- Using scientific equipment accurately
- Drawing conclusions and evaluating findings

In the early years, pupils begin by exploring and observing the world around them. In Key Stage 1, they develop simple enquiry skills and begin to record their findings. In Key Stage 2, they plan investigations, analyse results and draw conclusions with increasing independence.

Through these experiences, pupils learn that science is not just a body of knowledge, but a way of investigating and understanding the world.

Exploration and Discovery

Science at Northbourne is rooted in practical, hands-on learning. Pupils are given regular opportunities to explore, investigate and experiment through engaging lessons and whole-school experiences such as “Big Science” days.

These experiences allow pupils to apply their knowledge in meaningful contexts, deepening their understanding and developing curiosity. Through exploration and discovery, pupils become active participants in their learning, developing independence and a genuine enthusiasm for science.

Living out our Values

Our Science curriculum reflects our core values of Courage, Compassion and Community, which are embedded throughout learning. Pupils demonstrate:

Courage by asking challenging questions, testing ideas and learning from mistakes

Compassion by developing an understanding of environmental issues, sustainability and the impact of human activity

Community by working collaboratively, sharing ideas and recognising their role in protecting the world around them

Through Science, pupils develop a sense of responsibility and an understanding of how they can contribute positively to the world.

Inclusion and Excellence for All

Our vision of Nurturing Excellence underpins our Science curriculum, ensuring that all pupils can succeed.

Learning is carefully structured to ensure accessibility, with support such as:

- Explicit teaching of scientific vocabulary
- Practical, visual and discussion-based approaches
- Scaffolded tasks and guided support

At the same time, pupils are challenged to think deeply and engage in increasingly complex scientific enquiry.

All pupils, including those with SEND, are supported to access the full Science curriculum and develop as confident, capable learners.

Think Like a Scientist (Page 36)

To support the development of curious, independent scientists, every classroom displays our 'Think Like a Scientist' prompts. These act as a shared language for scientific enquiry across the school and help pupils to internalise the behaviours, habits and thought processes of successful scientists.

The prompts encourage children to ask questions, make predictions, observe carefully, gather evidence and draw conclusions from their investigations. By explicitly teaching and revisiting these scientific habits, pupils develop a deeper understanding of how science works and become more confident in applying their knowledge to explain the world around them.

Our 'Think Like a Scientist' approach provides a consistent framework for scientific enquiry throughout the school, supporting children to think critically, communicate their ideas clearly and evaluate evidence thoughtfully. Over time, pupils become increasingly independent in planning investigations, analysing results and reflecting on their learning, enabling them to develop the curiosity, resilience and analytical skills that are essential for success in science and beyond.

Cycle 1

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
KS1	Animals Including Humans 2	Living Things and Their Habitats 2	Uses of Everyday Materials 2	Big Science Event	Plants 1	Animals Including Humans 2
LKS2	Sound 4	Animals Including Humans 3	Light 3		Plants 3	Living Things and Their Habitats 4
UKS2	Animals Including Humans 6	Living Things and Their Habitats 6	Earth and Space 5		Forces 5	Electricity 6

Cycle 2

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
KS1	Everyday Materials 1	Living Things and Their Habitats 2	Uses of Everyday Materials 2	Big Science Event	Animals Including Humans 1	Plants 2
LKS2	Rocks 3	States of Matter 4	Electricity 4		Forces and Magnets 3	Animals Including Humans 4
UKS2	Living Things and Their Habitats 5	Evolution and Inheritance 6	Properties & Changes of Materials 5		Animals Including Humans 5	Light 6

Science Long Term Plan – KS1 CYCLE1

	Term1	Term2	Term3
	Everyday Materials	Living Things and Their Habitats	Uses of Everyday Materials
NC Objectives	Distinguish between an object and the material from which it is made Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock Describe the simple physical properties of a variety of everyday materials Compare and group together a variety of everyday materials on the basis of their simple physical properties.	Explore and compare the differences between things that are living, dead, and things that have never been alive Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.	Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.
1	I can identify and name a variety of everyday materials by looking closely at real-life objects	I can look closely at nature.	I can identify a variety of everyday materials and describe their physical properties.
2	I can explain the difference between an object and the material from which it is made.	I can name and describe the characteristics of living things.	I can explore objects around me, record what materials they are made from, and explain why those materials are suitable for their purpose.
3	I can describe the simple physical properties of everyday materials.	I can sort objects and organisms into 'living', 'dead', and 'never alive', explaining my choices.	I can explore how some materials can change shape by squashing, bending, twisting, and stretching.
4	I can compare and group everyday materials based on their properties and explain my reasoning.	I can explain how animals get their food from plants and other animals.	I can compare materials by squashing, bending, twisting, or stretching, and describe what happens.
5	I can predict which material would be suitable for a bucket.	I can identify producers, predators, and prey within familiar habitats and match examples to each role.	I can make a prediction. I can carry out a simple test. I can make observations and record my findings.
6	I can investigate which material is the most waterproof.	I can construct a simple food chain identifying the producer, prey and predators.	I can make a prediction. I can carry out a simple test. I can make observations and record my findings
Vocab	Material Object Wood Plastic Metal Glass Rock Properties Waterproof Absorbent	Living, Dead, Never alive, Food chain, Producer, Predator, Prey, Herbivore, Carnivore, omnivore	Material, Properties, Suitable / Suitability, Flexible, Rigid, Squash, Bend, Twist, Stretch, Predict

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Science Long Term Plan – KS1 CYCLE1

	Term 5	Term 6	– Across The Year –	
	Animals Including Humans	Plants	Seasons	
NC Objectives	Identify, name, draw and label the basic parts of the human body and say which part is associated with each sense	Observe and describe how seeds and bulbs grow into mature plants Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy	This unit is revisited across the year, with standalone lessons within the term's Science unit. Observe changes across the four seasons Observe and describe weather associated with the seasons and how day length varies.	
1	I can identify and name the main parts of the human body.	I can identify and describe the differences between seeds and bulbs.	2	I can identify the features specific to Autumn.
2	I can label a simple diagram of the human body.	I can explain what seeds and bulbs need to grow into healthy, mature plants.	3	I can identify the features specific to Winter.
3	I can match each of the five senses to the correct body part and explain my choices.	I can make a simple prediction and plan a fair test about how seeds will grow under different conditions.		I understand how animals adapt to the change in seasons.
4	I can investigate the sense of smell and taste and carry out a simple test.	I can carry out a simple test comparing how seeds grow in different conditions.	4	I can identify the features specific to Spring.
5	I can investigate the sense of touch and carry out a simple test.	I can carry out a simple test comparing how seeds grow in different conditions.		I can observe the weather, using a weather chart, across the week.
6	I can compare the five senses in a simple test and explain the similarities and differences I notice.	I can record and discuss my results.	6	I can identify the features specific to Summer. I know how to be safe in the sun.
Vocab	Eyes, Ears, Nose, Mouth, Skin, Sight, Hearing, Smell, Taste, Touch	Living, Dead, Never alive, Food chain, Producer, Predator, Prey, Herbivore, Carnivore, omnivore	Season, Summer, Autumn, Winter, Spring, Weather, Temperature, Daylight, Night, Sun, Suncream, UV Rays, Shade	

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Science Long Term Plan – KS1 CYCLE 2

	Term 1	Term 2	Term 3
	Animals Including Humans	Living Things and Their Habitats	Uses of Everyday Materials
NC Objectives	Identify and name a variety of common animals, including fish, amphibians, reptiles, birds, and mammals. Identify and name animals that are carnivores, herbivores, and omnivores. Describe and compare the structure of a variety of common animals.	Find out about and describe the basic needs of animals, including humans, for survival (water, food and air) Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other Identify and name a variety of plants and animals in their habitats, including microhabitats	Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.
1	I can identify and name a variety of common animals.	I can identify what the basic needs of animals and humans are. I can explain the difference between a want and a need	I can identify materials in everyday objects.
2	I can identify characteristics of different animal groups.	I can explain why each basic need is required.	I can describe the properties of different materials.
3	I can classify animals into different groups according to their characteristics.	I can describe how different habitats provide the basic needs for different kinds of animals and plants.	I can investigate the properties of fabric.
4	I can compare the structure of a variety of common animals	I can explain how animals get I can identify different habitats and name common animals and plants that live in each. food from plants and other animals.	I can identify materials that are transparent and opaque.
5	I can describe the structure of a variety of common animals.	I can explain what a microhabitat is.	I can conduct a fair test to see if materials are waterproof.
6	I can identify and name common animals that are carnivores, herbivores, and omnivores.	I can understand and explain how living things in a habitat depend on each other for survival.	I can conduct a fair test to see if materials are waterproof.
Vocab			

Science Long Term Plan – KS1 CYCLE 2

	Term 5	Term 6
	Plants	Animals Including Humans
NC Objectives	Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees Identify and describe the basic structure of a variety of common flowering plants, including trees.	Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. Notice that animals, including humans, have offspring which grow into adults
1	I can describe, compare and ask questions about plants and seeds.	I can explain that different animals have different types of offspring, I can match a young animal to its adult and classify the animals into different groups.
2	I can describe, compare and ask questions about trees.	I can compare the life cycles of different animals. I can name and order the stages of a life cycle.
3	I can identify and name some garden and wild plants.	I can name, order and compare the stages of the human life cycle.
4	I can explain what an evergreen tree is and what a deciduous tree is.	I can describe the importance of exercise for humans. I can test the effects of exercise on the human body and discuss my findings.
5	I can identify and name some plants and trees.	I can understand why I need to eat a balanced diet and what that consists of.
6	I can discuss how the plants and trees are similar and different. I can classify plants and trees into groups.	I can explain why good hygiene is important.
Vocab		

Science Long Term Plan – LKS2 CYCLE 1

	Term 1	Term 2	Term 3
	Rocks	States of Matter	Electricity
NC Objectives	compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. describe in simple terms how fossils are formed when things that have lived are trapped within rock. recognise that soils are made from rocks and organic matter.	compare and group materials together, according to whether they are solids, liquids or gases observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.	identify common appliances that run on electricity construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit recognise some common conductors and insulators, and associate metals with being good conductors.
1	I can describe a rock and know where it comes from	I can sort and describe the properties of materials (solids, liquids and gases).	I can identify common appliances that are powered by mains or batteries
2	I can describe how different rock types are formed	I can investigate how temperature affects the melting speed of a material.	I can build and draw series circuits
3	I can group rocks according to their different properties	I can plan and conduct an investigation about water temperature	I can predict whether a circuit will work and improve through trial and error.
4	I can test the hardness of rocks	I can identify and observe the processes that cause water to change state	I can investigate what materials make good conductors and insulators.
5	I can explore different types of soil.	I can explain the water cycle	I can investigate the similarities and differences of insulators and conductors.
6	I can explain the importance of soil	I can explain how a model of the water cycle demonstrates the different stages.	I can explore conductivity within a circuit.
Vocab	Fossil, soil, sedimentary, metamorphic, igneous, absorbent, porous, durable, permeable, impermeable	Solid, liquid, gas, evaporation, condensation, precipitation, hardness, transparency, conductivity, solubility, (ir)reversible, solution, dissolve	Cells, Wires, Bulbs, Switches, Buzzers, Battery, Circuit, Series, Conductors, Insulators, brightness appliance, battery power, main power, cell, break in circuit

Science Long Term Plan – LKS2 CYCLE 1

	Term 5	Term 6
	Forces and Magnets	Animals Including Humans
NC Objectives	compare how things move on different surfaces notice that some forces need contact between two objects, but magnetic forces can act at a distance observe how magnets attract or repel each other and attract some materials and not others compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials describe magnets as having two poles predict whether two magnets will attract or repel each other, depending on which way poles are facing	identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat identify that humans and some other animals have skeletons and muscles for support, protection and movement.
1	I can investigate different pulls and pushes.	I can identify and name bones in the human body
2	I can investigate the effect friction has on moving objects.	I can explain the functions of different parts of the skeleton
3	I can describe and investigate the effects of different types of magnets on objects.	I can identify and name bones in a range of animals.
4	I can compare and group objects according to their magnetism	I can investigate animals with and without backbones and exoskeletons.
5	I can investigate different metals' attraction to magnets	I can sort and group animals based on their skeletons.
6	I can describe the different poles of a magnet	I can sort food into the five food groups
Vocab	push, pull, attract, repel, pole, twist, bend, squash, distance, fraction,	Nutrition, vitamins, minerals, fat, protein, carbohydrates, fibre, water, skeletons, support, protection, skull, brain, ribs, heart, lungs, movement, joint, muscles, pull, contract, relax, diet.

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Science Long Term Plan – LKS2 CYCLE 2

	Term 1	Term 2	Term 3
	Sound	Animals Including Humans	Light
NC Objectives	Identify how sounds are made, associating some of them with something vibrating recognise that vibrations from sounds travel through a medium to the ear find patterns between the pitch of a sound and features of the object that produced it find patterns between the volume of a sound and the strength of the vibrations that produced it recognise that sounds get fainter as the distance from the sound source increases.	Describe the simple functions of the basic parts of the digestive system in humans identify the different types of teeth in humans and their simple functions construct and interpret a variety of food chains, identifying producers, predators and prey.	recognise that they need light in order to see things and that dark is the absence of light notice that light is reflected from surfaces recognise that light from the sun can be dangerous and that there are ways to protect their eyes recognise that shadows are formed when the light from a light source is blocked by an opaque object find patterns in the way that the size of shadows change.
1	I can identify how sounds are made	I can compare and sort animals according to their teeth.	I can identify different light sources.
2	I can recognise how vibrations travel through a medium to the ear	I can identify different types of teeth in humans and their functions.	I can explain how we can keep ourselves safe from the Sun.
3	I can explain how sound is measured	I can identify different layers in teeth.	I can describe how we can see objects
4	I can find patterns between the volume of a sound and the vibrations that produce it	I can explain the functions of the different parts of the human digestive system	I can compare shapes of objects and their shadows.
5	I can find patterns between the pitch of a sound and features of the object that produce it.	I can demonstrate how the different parts of the digestive system work.	I can plan an experiment. (How does the distance between the light source and the object affect the size of a shadow?)
6	enquiry questions: How does the distance from the sound source affect the volume of the sound.	I can discuss and plan an experiment (tooth decay – maybe earlier in the term?)	I can conduct and record the results of a fair test.
Vocab	Volume, Vibration, Wave, Pitch, Tone, Speaker insulation	Mouth, Tongue, Teeth, Oesophagus, Stomach, Small Intestine, Large Intestine, Herbivore, Carnivore, Canine, Incisor, Molar, movement, support, protection, nutrition	Shadows, Mirror, Dark, Reflection, light source, cast reflect, reflective, reflection blocked, transparent, translucent, opaque

	Term 5	Term 6
	Plants	Living Things and Their Habitats
NC Objectives	identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant investigate the way in which water is transported within plants explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.	recognise that living things can be grouped in a variety of ways explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment recognise that environments can change and that this can sometimes pose dangers to living things.
1	I can explain the functions of different parts of a plant.	I can group animals according to different criteria
2	I can plan and conduct a plant growth experiment (fair test, observing over time)	I can identify and group invertebrates and vertebrates
3	I can explain the function of a stem in a plant	I can classify animals using a classification key.
4	I can label reproductive parts of a plant	I can group and sort a range of different plants
5	I can describe what seeds are and the conditions in which they germinate and grow best.	I can use classification keys to sort and group plants
6	I can explain what pollination is and how it works.	I can collect and analyse data about animals in the local area
Vocab	Air, Light, Water, Nutrients, Soil, Reproduction, Transportation, Dispersal, Pollination, Flower, seed formation, seed dispersal, pollination	Vertebrates, Fish, Amphibians, Reptiles, Birds, Mammals, Invertebrates, Snails, Slugs, Worms, Spiders, Insects, Environment, Habitat, invertebrates, habitat, classification key

Science Long Term Plan – UKS2 CYCLE 1

	Term 1	Term 2	Term 3
	Animals Including Humans	Living Things and Their Habitats	Earth and Space
NC Objectives	Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function Describe the ways in which nutrients and water are transported within animals, including humans.	Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals Give reasons for classifying plants and animals based on specific characteristics	Describe the movement of the Earth, and other planets, relative to the Sun in the solar system Describe the movement of the Moon relative to the Earth Describe the Sun, Earth and Moon as approximately spherical bodies Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.
1	I can identify and name the main external and internal parts of the heart using a dissected sample.	I can observe living things carefully and describe similarities and differences between them	I can describe the Sun, Earth and Moon as approximately spherical bodies and explain how this affects what we see from Earth.
2	I can describe the pathway blood takes as it moves through the heart	I can group living things based on observable characteristics and explain why I chose each group.	I can explain how the Earth's rotation causes day and night and the apparent movement of the Sun across the sky.
3	I can explain the difference between arteries, veins and capillaries, and identify each one on a diagram	I can identify I can use a simple classification key to identify different plants and animals. layers in teeth.	I can describe how the Earth's movement around the Sun and its tilt causes the seasons.
4	I can describe the main components of blood and explain one function of each.	I can identify different types of micro-organisms (bacteria, viruses, fungi) and give one example of each.	I can describe how the Moon moves around the Earth and how this affects what we see from Earth.
5	I can measure how my heart rate changes with exercise and present the results clearly	I can explain how bacteria can be helpful or harmful in everyday life.	I can describe the movement of the planets around the Sun and compare their orbits to Earth's orbit.
6	I can explain one way diet, exercise or lifestyle choices can affect the circulatory system	I can record observations from an investigation and explain what my results show.	I can use my knowledge of Earth, Moon and Sun movements to explain patterns in day, night, phases of the Moon, and seasons.
Vocab	Heart, chamber, valve, artery, vein, capillary, blood, red blood cell, white blood cell, platelet, oxygen, nutrient, circulatory system, exercise, lifestyle.	Classification, organism, species, micro-organism, bacteria, virus, fungi, characteristics, habitat, observation, similarities, differences, experiment, evaluation, identification key.	Solar System, planet, Earth, Sun, Moon, satellite, rotation, orbit, day, night, season, tilt, phases of the Moon, sphere, apparent movement.

Science Long Term Plan – UKS2 CYCLE 1

	Term 5	Term 6
	Forces	Electricity
NC Objectives	Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object Identify the effects of air resistance, water resistance and friction, that act between moving surfaces Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.	Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches Use recognised symbols when representing a simple circuit in a diagram
1	I can describe why objects fall to the ground and give a reason using gravity.	I can investigate what makes a complete circuit
2	I can describe how air resistance slows objects and explain why some shapes fall faster than others.	I can draw accurate symbols in a circuit diagram
3	I can describe how water resistance slows objects and explain why shape affects how they move.	I can investigate how changes in voltage affects the current in a circuit
4	I can describe how friction slows things down and suggest ways to change it.	I can create a parallel circuit and explain how they work
5	I can describe how levers, pulleys and gears make a small force do a bigger job.	I can explain how a changing variable affects the current in a circuit
6	I can carry out a test to see how forces affect objects and explain what I find out.	I can explain how a changing variable affects the current in a circuit
Vocab	Force, gravity, friction, air resistance, water resistance, mechanism, lever, pulley, gear, mass, weight, frictionless, surface area, mechanical advantage, investigation.	Circuit, component, current, voltage, cell, battery, lamp/bulb, buzzer, switch, wire, series circuit, parallel circuit, symbol, diagram, observation.

Science Long Term Plan – UKS2 CYCLE 2

	Term 1	Term 2	Term 3
	Living Things and Their Habitats	Evolution and Inheritance	Materials
NC Objectives	Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird Describe the life process of reproduction in some plants and animals.	Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution	Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets; Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution; Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic Demonstrate that dissolving, mixing and changes of state are reversible changes; 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.
1	I can identify different parts of a flower.	I can analyse the characteristics that are passed from parents to offspring.	I can compare and group materials based on their properties.
2	I can compare and contrast sexual and asexual reproduction in plants.	I can explain how living things adapt to their environments.	I can plan an investigation into thermal conductors and insulators.
3	I can describe the reproduction in mammals.	I can identify and explain key ideas of the theories of evolution	I can report my results and evaluate my findings.
4	I can compare and contrast life cycles of an amphibian and an insect.	I can conduct a fair test to evidence the principles of evolution	I can investigate electrical conductors and insulators.
5	I can identify different types of mammals.	identify how animals and plants are adapted to suit their environment in different ways	I can identify materials that are soluble and insoluble.
6	I can identify familiar animals that undergo metamorphosis.	I can identify evidence for evolution from fossil records.	I can explain how solutions become super-saturated
Vocab	Classification, life cycle, reproduce, sexual reproduction, asexual reproduction, embryo, metamorphosis, vertebrate, invertebrate, offspring.	Evolution, adaptation, inheritance, variation, species, offspring, characteristics, fossil, natural selection, ancestor.	Hardness, Solubility, Transparent, Opaque, Translucent, Magnetic, Filter, Evaporation, Dissolving, Mixing, Thermal / electrical conductor / insulator

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Science Long Term Plan – UKS2 CYCLE 2

	Term 5	Term 6
	Animals Including Humans	Light
NC Objectives	Describe the changes as humans develop to old age.	Recognise that light appears to travel in straight lines 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 explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them
1	I can explain what gestation periods are for different animals including humans.	I can identify and describe the path light takes into the eye; I can describe how we see.
2	I can describe the changes as humans develop from fertilisation to birth.	I can investigate reflection.
3	I can explain how babies grow and develop into children.	I can investigate refraction
4	I can describe and explain the main changes that occur during puberty.	I can explore the visible spectrum
5	I can identify the changes that take place in late adulthood.	I can identify how we see colours
6	I can describe the changes of human development.	I can investigate factors that affect shadows; I can explain why shadows have the same shape as the objects that cast them
Vocab	Foetus, Embryo, Womb, Gestation, Teenager, Elderly, Development, Puberty; womb, foetus, embryo, gestation	Light source, reflection, refraction, shadow, opaque, translucent, transparent, prism, spectrum, retina.

Animals Including Humans

EYFS	Year 1 / 2	Year 3 / 4	Year 5 / 6	Future Learning
Know and talk about the different factors that support their overall health and wellbeing: • Regular physical activity • Healthy eating • Toothbrushing • Sensible amounts of screen time • Having a good sleep routine • Being a safe pedestrian Use all their senses in hands on exploration of natural materials. Continue developing positive attitudes about the differences between people.	Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. Identify and name a variety of common animals that are carnivores, herbivores and omnivores. Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. - Know that animals, including humans, have offspring which grow into adult. Know the basic stages in a life cycle for animals, including humans. Find out and describe the basic needs of animals, including human for survival (water, food and air). Describe the importance for humans of exercise, eating the right amount of different types of food and hygiene.	Identify that animals, including humans, need the right types and amount of nutrition, and they cannot make their own food; they get their nutrition from what they eat. Know how nutrients, water and oxygen are transported within animals and humans. Know about the importance of a nutritious, balanced diet. Identify that humans and some other animals have skeletons and muscles for support protection and movement. - Describe the simple functions of the basic parts of the digestive system in humans. Identify the different types of teeth in humans and their simple functions. Construct and interpret a variety of food chains, identifying producers, predators and prey.	Describe the changes as humans develop to old age. Identify the changes experienced in puberty. - Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. Recognize the impact of diet, exercise, drugs and lifestyle on the way their bodies function. Describe the ways in which nutrients and water are transported within animals, including humans.	The consequences of imbalances in the diet, including obesity, starvation and deficiency diseases. The effects of recreational drugs (including substance misuse) on behaviour, health and life processes. The structure and functions of the gas exchange system in humans, including adaptations to function. The mechanism of breathing to move air in and out of the lungs. The impact of exercise, asthma and smoking on the human gas exchange system

Plants

EYFS	Year 1 / 2	Year 3 / 4	Year 5 / 6	Future Learning
Plant seeds and care for growing plants. Understand the key features of the life cycle of a plant.	Identify and name a variety of common wild and garden plants Including deciduous and evergreen trees. Identify and describe the basic structure of a variety of common flowering plants. Identify and name the roots, trunk, branches and leaves of trees. - Find out and describe how plant need water, light and warmth to grow and stay healthy. Observe and describe how seeds and bulbs grow into mature plants.	Explore the part flowers play in a flowering plants life cycle, including: pollination, seed formation and seed dispersal. Identify and describe the functions of different parts of the flowering plant: roots, stem/trunk leaves and flowers. Explain the requirements of plants for life and growth (air, light, water, nutrients from soil, room to grow) and how they vary between plants.		Reproduction in plants, including flower structure, wind and insect pollination, fertilisation, seed and fruit formation and dispersal, including quantitative investigation of some dispersal mechanisms.

Living Things

EYFS	Year 1 / 2	Year 3 / 4	Year 5 / 6	Future Learning
Understand the key features of the life cycle of an animal. Begin to understand the need to respect and care for the Natural environment and all living things. Recognise some environments that are different to the one in which they live. Explore the natural world around them. Describe what they see, hear and feel when outside.	Explore and compare the difference between things that are living, dead and things that have never been alive. Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other. Identify and name a variety of plants and animals in their habitats, including micro habitats. Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name the different sources of food.	Recognise that living things can be grouped in a variety of ways. Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. Recognise that environments can change and that this can sometimes pose danger to living things.	Know the life cycle of different living things, e.g. mammal, amphibian, insect, bird. Know the differences between different life cycles. Know the process of reproduction in plants. Know the process of reproduction in animals. - Classify living things into broad groups according to observable characteristics and based on similarities and differences. Give reasons for classifying plants and animals based on specific characteristics.	Reproduction in humans (as an example of a mammal), including the structure and function of the male and female reproductive systems, menstrual cycle (without details of hormones), gametes, fertilisation, gestation and birth, to include the effect of maternal lifestyle on the foetus through the placenta. Reproduction in plants, including flower structure, wind and insect pollination, fertilisation, seed and fruit formation and dispersal, Including quantitative investigation of some dispersal mechanisms. Differences between species.

Evolution and Inheritance

EYFS	Year 1 / 2	Year 3 / 4	Year 5 / 6	Future Learning
			Know about evolution and can explain what it is. Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.	Heredity as the process by which information is transmitted from one generation to the next. A simple model of chromosomes, genes and DNA in heredity, including the part played by Watson, Crick, Wilkins and Franklin in the development of the DNA model. The variation between species and between individuals of the same species means some organisms compete more successfully, which can drive natural selection. Changes in the environment may leave individuals within a species, and some entire species, less well adapted to compete successfully and reproduce, which in turn may lead to extinction.

Materials

EYFS	Year 1 / 2	Year 3 / 4	Year 5 / 6	Future Learning
Compare length, weight and capacity. Explore collections of materials with similar and / or different properties. Use all their senses in hands on exploration of natural materials. Talk about the differences between materials and changes they notice. Explore different materials freely in order to develop their ideas about how to use them and what to make. Join different materials to use to express them.	Distinguish between an object and the material from which it is made. Identify and name a variety of everyday materials, including wood, metal, plastic, glass, water and rock. Describe the simple physical properties of a variety of everyday materials. Compare and group together a variety of everyday materials on the basis of their simple properties. - Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. Find out how shapes of solid objects made from some materials can be changed by squashing bending, twisting and stretching.	Compare and group materials together, according to whether they are solids, liquids or gases. Observe that some materials change state when heated or cooled, and]measure and research the temperature at which this happens in degrees Celsius. Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.	Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. Use knowledge of solids, liquids, and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity and response to magnets. Demonstrate that dissolving, mixing changes of state are reversible changes. Explain that some changes result in the formation of new materials, and this kind of change is usually not reversible, including changes associated with burning and the action of acid on bicarbonate of Soda.	Chemical reactions as the rearrangement of atoms. Representing chemical reactions using formulae and using equations. Combustion, thermal decomposition, oxidation and displacement reactions. Defining acids and alkalis in terms of neutralisation reactions. The pH scale for measuring acidity / alkalinity; and indicators.

Light

EYFS	Year 1 / 2	Year 3 / 4	Year 5 / 6	Future Learning
		Recognise that they need light in order to see things and that dark is the absence of light. Notice that light is reflected from surfaces. Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. Recognise that shadows are formed when the light from a light source is blocked by a solid object. Find patterns in the way that the sizes of shadows change.	Recognise that light appears to travel in straight lines. 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. Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes. Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. Know how simple optical instruments work, e.g. periscope, telescope, binoculars, mirror, magnifying glass etc.	The similarities and differences between light waves and waves in matter Light waves travelling through a vacuum; speed of light The transmission of light through materials: absorption, diffuse scattering and specular reflection at a surface. Use of ray model to explain imaging in mirrors, the pinhole camera, the refraction of light and action of convex lens in focusing; the human eye. Light transferring energy from source to absorber leading to chemical and electrical effects; photo –sensitive material in the retina and in cameras. Colours and the different frequencies of light, white light and prisms: differential colour effects in absorption and diffuse reflection.

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EYFS	Year 1 / 2	Year 3 / 4	Year 5 / 6	Future Learning
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Forces

EYFS	Year 1 / 2	Year 3 / 4	Year 5 / 6	Future Learning
Explore how things work (mechanical equipment and cogs) Explore and talk about different forces they feel.		Compare how things move on different surfaces. Know how a simple pulley works and use making lifting an object simpler Notice that some forces need contact between two objects, but magnetic forces can act at a distance. Observe how magnets attract and repel each other and attract some materials and not others. Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials. Describe magnets as having two poles. Predict whether two magnets with attract or repel each other, depending on which poles are facing.	Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object and the impact of gravity on our lives. Identify the effects of air resistance, water resistance and friction, which act between moving surfaces. Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.	Magnetic fields by plotting with compass, representation by field lines. Earth's magnetism, compass and navigation. Gravity force, weight = mass x gravitational field strength (g), on Earth g=10 N/kg, how this is different on other planets and stars; gravity forces between Earth and Moon, and between Earth and Sun. Forces as pushes or pulls, arising from the interaction between two objects. Using force arrows in diagrams, adding forces in one dimension, balanced and unbalanced forces. Moment as the turning effect of a force.

Electricity

EYFS	Year 1 / 2	Year 3 / 4	Year 5 / 6	Future Learning
		Identify common appliances that run on Electricity. Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery. Recognise that a switch opens and closes the circuit and associate this with whether or not a lamp lights in a simple series circuit. Recognise some common conductors and insulators, and associate metals with being good conductors. Know the difference between a conductor and an insulator; giving examples of each. Safety when using electricity.	Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on / off position of switches. Use recognised symbols when representing a simple circuit in a diagram	Electric current, measured in amperes, in circuits, series and parallel circuits, currents add where branches meet and current as flow of charge. Potential difference, measured in volts, battery and bulb ratings; resistance, measured in ohms, as the ratio of potential difference (p.d.) to current. Differences in resistance between conducting and insulating components (quantitative). Static electricity

Sound

EYFS	Year 1 / 2	Year 3 / 4	Year 5 / 6	Future Learning
		Know how sound is made associating some of them with vibrating. Know what happens to a sound as it travels from its source to our ears. Know the correlation between the volume of a sound and the strength of the vibrations that produced it. Know how sound travels from a source to our ears. Know the correlation between pitch and the object producing a sound.		Waves on water as undulations which travel through water with transverse motion; these waves can be reflected, and add or cancel Frequencies of sound waves, measured in Hertz (Hz); echoes, reflection and absorption of sound. Sound needs a medium to travel, the speed of sound in air, in water, in solids. Sound produced by vibrations of objects, in loudspeakers, detected by their effects on microphone diaphragm and the ear drum; sound waves are longitudinal. Auditory range of humans and animals. Pressure waves transferring energy; use for cleaning and physiotherapy by Ultra -sound. Waves transferring information for conversion to electrical signals by microphone.

Earth Sciences

EYFS	Year 1 / 2	Year 3 / 4	Year 5 / 6	Future Learning
Understand the effect of changing seasons on the natural world around them.	Observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies.	Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties Describe in simple terms how fossils are formed when things that have lived are trapped within rock Recognise that soils are made from rocks and organic matter	Describe the movement of the Earth, and other planets, relative to the Sun in the solar system. Describe the movement of the Moon relative to the Earth. Describe the Sun, Earth and Moon as approximately spherical bodies. Describe the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.	The seasons and the Earth's tilt, day length at different times of year, in different hemispheres. Our Sun as a star, other stars in our galaxy, other galaxies. The light year as a unit of astronomical distance. - Know how fossils can be used to find out about the past. The composition and structure of the Earth. The rock cycle and the formation of igneous, sedimentary and metamorphic rocks.

	EYFS	Year 1 / 2	Year 3 / 4	Year 5 / 6
Animals Incl. H		Amphibians birds carnivore fish herbivore insects mammals nocturnal omnivore reptiles tame Carbohydrates diet exercise fats healthy hygiene nutrition off-spring proteins survival	Balanced diet carbohydrates exercise fats healthy nutrients nutrition oxygen protein survival water Canine dentil enamel food chain incisors intestine molars organ oesophagus pancreas pre-molars predators prey pupil salivary gland	(Evolution) Adaptation chromosomes evolution excavating genes inheritance off-spring palaeontologist predators
Living Things		Desert dinosaur indigenous microhabitats ponds rainforest rivers sea species woodland	Algae amphibians birds fish fungi invertebrate mammals micro- organism reptiles species vertebrate	Classification embryo gestation obese precision puberty reproduction teenager toddler Algae bacteria fungi invertebrates micro-organism Monera Protista species vertebrates
Plants	Branches flower fruit leaves petal plant roots stem tree trunk vegetable	Blossom branches buds bulbs deciduous environment evergreen fruit petals trunk vegetable wild plants Blossom bulb crown deciduous evergreen habitat oxygen roots stem trunk woodland	Anther fertiliser nutrients pollination roots seed dispersal seed formation stem stigma trunk	
Other Bio	(Healthy Living) Diet emotions exercise healthy hydrated hygiene mindfulness mental health nutrients		(Skeleton and Muscles) Bone cartilage joint muscle pelvis rib cage skeleton skull spine tendon	(Circulatory System) Atrium (atria) blood vessels capillaries cardiologists cardiovascular drugs muscle pulse ultrasound ventricles
Materials	Absorb bumpy dry floating frozen ice material melting reflection sinking smooth symmetry texture waterproof wet	Flexible gas liquid magnetic materials metal opaque plastic rigid shiny stretch transparent waterproof wood Bend metal plastic squash stretch twist wood	Celsius condensation evaporation freezing point gas irreversible liquid matter melting point molecules precipitation reversible solid temperature	Bicarbonate conductivity dissolve evaporation filtering irreversible melting reversible separate soda solubility thermal transparency

	EYFS	Year 1 / 2	Year 3 / 4	Year 5 / 6
Earth Sciences		(Seasonal Change) Autumn spring summer temperature thermometer weather symbol winter	(Rocks) Crystal fossil igneous metamorphic mineral organic matter rock sedimentary soil	(Earth and Space) Astronomical crescent moon eclipse gibbous moon lunar orbit planet rotation solar system spherical
Physics			(Forces and Magnets) Attract force magnet magnetic magnetic field magnetic pole non-magnetic repel (Electricity) Appliance battery buzzers cells circuits conductor insulator socket switch (Sound) Amplitude auditory decibel frequency insulation medium pitch sound wave vibrating volume	(Forces) Air resistance friction gears gravity levers parachute pulleys surface resistance water resistance (Electricity) Cells conductor dimmer switch fuses generator insulator series circuits socket volts (Light) Concave convex cornea iris lens light source light wave pupil refraction retina

	Ask scientific questions	Plan an enquiry	Observe closely	Take measurements	Gather and record results	Present results	Interpret results	Draw conclusions (KS2)	Make a prediction (KS2)	Evaluate an enquiry (KS2)
Identify and classify	Ask questions to find out more about things	Ask 'why' questions Choose the right resources to carry out their own plan.	Use new vocabulary Talk about what they see using a wide vocabulary			Write short sentences with words with known sound letter correspondence. Begin to describe a sequence of events, real of fictional, using words such as 'first' Draw information from a single map				
Comparative and fair tests			Compare quantities using language 'more than'; 'fewer than'	Develop their small motor skills so that they can use a range of tools competently, safely and confidently	Make comparisons Between objects relating to size, length, weight and capacity		Articulate their ideas and thoughts in well-formed sentences			
Observation over time	Talk about what they see using a wide vocabulary									
Pattern seeking										
Research										

	Ask scientific questions	Plan an enquiry	Observe closely	Take measurements	Gather and record results	Present results	Interpret results	Draw conclusions (KS2)	Make a prediction (KS2)	Evaluate an enquiry (KS2)
Identify and classify	Be able to ask a yes / no questions to aid sorting	Identify the headings for the two groups, e.g. 'it is … it is not…'	Be able to compare objects based on obvious observable features e.g. size			Sort objects and living things into two groups using a basic Venn diagram or table	Talk about a number of objects in each group and which has less etc.			
Comparative and fair tests	Identify the question to investigate from a scenario or choose a question from a range provided	Choose equipment to use and decide what to do or what to observe or measure in order to answer the question	Make observations linked to answering the questions	When appropriate measure using standard units where all the numbers are on a marked scale.	Record data in simple prepared tables pictorially or photos	Present what they have learnt verbally, using pictures or block diagrams	Answer their question in simple sentences using their observations or measurements.			
Observation over time	Ask a question about what might happen in the future based on an observation					Present what they have learnt verbally, using pictures				
Pattern seeking	Ask a question that is looking for a pattern based on an observation				Record data in simple prepared tables and tally charts	Present what they have learnt verbally				
Research	Ask one or two simple questions linked to a topic					Present what they have learnt verbally, using pictures	Be able to answer their questions using simple sentences			

	Ask scientific questions	Plan an enquiry	Observe closely	Take measurements	Gather and record results	Present results	Interpret results	Draw conclusions (KS2)	Make a prediction (KS2)	Evaluate an enquiry (KS2)
Identify and classify	Be able to ask a yes / no questions to aid sorting	Be able to put appropriate headings onto intersecting Venn and Carroll Diagrams	Be able to compare objects based on more sophisticated observable features.			Sort objects and living things into groups using intersecting Venn and Carroll Diagrams	Spot patterns in the data particularly two criteria with no examples E.g. There are no living things with no wings and no legs	Draw conclusions when appropriate		Suggest improvements, e.g. looking at a wider range of objects; suggest a new question which has arisen from the investigation
Comparative and fair tests	Ask a range of questions linked to the topic	Decide what to change and what to measure or observe	Make observations linked to answering the questions	Measure using standard units where not all numbers are marked on the scale and take repeat readings where necessary	Prepare own tables to record data	Present data in bar charts	Refer directly to their evidence when answering a question	Where appropriate provide oral or written explanations for their findings.	Use results from an investigation to make a prediction about a further result	Suggest improvements, e.g. to method of taking measurements; suggest a new question which has arisen from the investigation
Observation over time		Decide what to change and what to measure or observe. Decide how often to take the measurement	Make a range of relevant observations	Measure using standard units where not all numbers are marked on the scale. Use data loggers to measure over time		Present data in line charts				
Pattern seeking		Decide what to measure or observe	Make observations linked to answering the questions	Measure using standard units where not all numbers are marked on the scale		Present data as a scatter gram				
Research		Choose a source from a range provided				Present what they learnt verbally or using labelled diagrams	Be able to answer their questions using simple scientific language			Suggest limitations to the research and suggestions for further research – e.g. from primary sources; further secondary sources.

	Ask scientific questions	Plan an enquiry	Observe closely	Take measurements	Gather and record results	Present results	Interpret results	Draw conclusions (KS2)	Make a prediction (KS2)	Evaluate an enquiry (KS2)
Identify and classify	Be able to ask a range of yes/no questions to air sorting and decide which ways of sorting will give useful information	Identify specific clear questions that will sort without ambiguity	Be able to compare not only based on physical properties but also using knowledge gained from previous enquiry			Create branching tree diagrams and keys to enable others to name living things and objects	Be able to talk about the features that objects and living things share and do not share based on information in the key	Be able to use data to show that living things and materials that are grouped together have more things in common that with things in other groups		Be able to explain using evidence that the branching database or classification key will only work for the living things or materials it was created for.
Comparative and fair tests	Ask a range of questions and identify the type of enquiry that will help to answer the questions	Recognise and control variables	Make observations linked to answering the questions	Measure using standard units using equipment that has scales involving decimals	Prepare own tables to record data including columns for taking repeat readings.	Choose an appropriate form of presentation	Be able to answer their questions describing casual relationships	Provide oral or written explanations for their findings	Use test results to make further predictions for future investigations	Explain their degree of trust in their results. E.g. precision in taking measurement s, variables that may not have been controlled and accuracy of results.
Observation over time			Make a range of relevant observations			Choose an appropriate form of presentation	Be able to answer their questions describing changes over time			
Pattern seeking			Make observations linked to answering the questions			Present data as a scatter gram using ICT graphing software	Be able to answer their question identifying patterns			
Research	Ask a range of questions recognising that some can be answered through research and others cannot.	Choose suitable sources				Present what they learnt in a range of ways	Be able to answer their questions using scientific evidence gained from a range of sources			Be able to talk about their degree of trust in the sources they used.

Think like a… **Scientist!**

Northbourne CE Primary School
Nurturing Excellence.

Ask questions about the world around you.

Make predictions using what you already know.

Observe carefully and notice important details.

Plan and carry out fair tests.

Use equipment safely and accurately.

Measure and record results carefully.

Use evidence to answer scientific questions.

Draw conclusions from evidence and results.