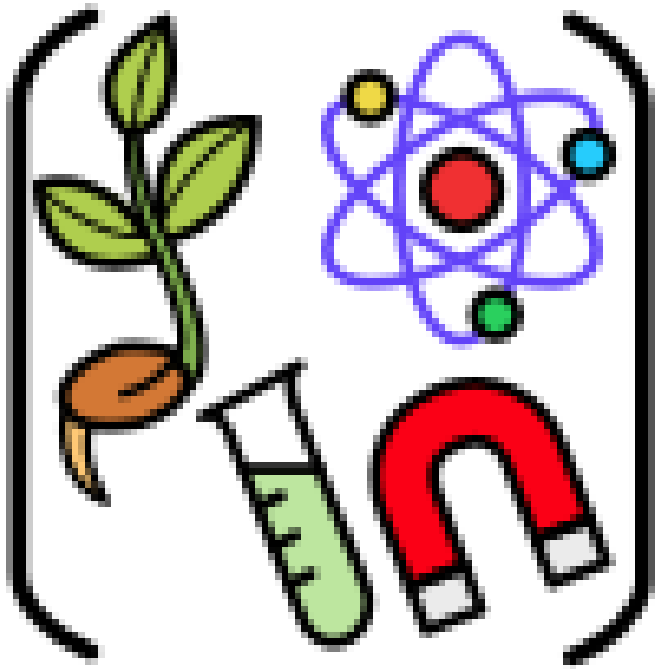
Curriculum
Subject - Whole School



Curriculum
Subject Rationale

Intent:	At Wilbraham Primary School, we are proud of the diversity of our children's backgrounds. We value their observations and individual experiences of what they see around them. We aim to harness this and provide them with the skills and language they need to view the world through the eyes of a scientist. Our curriculum is progressive starting with exploration of the world in EYFS. Year on year our science curriculum develops to provide children with the confidence to enhance their understanding of their observations. Each year the children will encounter a rich variety of the five lines of enquiry: observing over time, pattern seeking, comparative and fair testing, identifying, classifying and grouping and researching using secondary sources. They will develop the skills to think scientifically by asking questions, forming lines of enquiry, carrying out accurate testing and interpreting results. Finally, children will be empowered to use age-appropriate scientific language to allow them to better articulate their understanding and make their views heard. Through this approach, we aim to give the children skills, tools and language to take with them beyond school to challenge, question and voice their views about the ever-changing world they live in.
Implementation:	Our teachers provide weekly, creative lessons, that engage and challenge pupils by using a range of strategies to introduce, explore and help our children to fully understand scientific learning. Each year groups' objectives come from the national curriculum and these have been aligned to fit with the associated topics. Opportunities are also provided to make links across other curriculum areas such as reading and through STEM activities. We also aim to inspire our children to become future scientists by highlighting the work of BAME scientists and celebrate scientific events in the calendar for example British Science Week. In addition, we believe that it is paramount to engage with parents and encourage science at home, by running annual science experiments and selfie competitions. We acknowledge that science goes beyond the classroom and we therefore strive to give our children enriching experiences through trips to museums and having visitors in school. Teachers are given the training and support to possess the knowledge to deliver both substantive and disciplinary knowledge with the aim to teach these simultaneously in each lesson.
Impact:	Our children enjoy taking part in science lessons and are enthusiastic about their learning. They are able to work collaboratively and practically and through these experiences are able to discuss, question and reflect about what they have been learning. Revision of key concepts and knowledge are revisited regularly through metacognitive strategies at the start of each science lesson to ensure that teachers are able to assess pupils' understanding. Children at Wilbraham, will be able to recall key facts from various topics throughout their school career based on the substantive knowledge they have been taught. Pupils will be able to do this whilst also discussing the disciplinary knowledge based on the methods used when working scientifically from EYFS to Year 6.

Curriculum Map
Subject - EYFS

EYFS

	Science	Vocabulary
EYFS	• Using all their senses in hands-on exploration of natural materials. • Exploring collections of materials with similar and/or different properties. • Talking about what they see. • Beginning to make sense of their own life-story and family's history. • Exploring how things work. • Planting seeds and care for growing plants. • Understanding the key features of the life cycle of a plant and an animal. • Beginning to understand the need to respect and care for the natural environment and all living things. • Exploring and talk about different forces they can feel. • Talking about the differences between materials and changes they notice • Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.	Senses (taste, touch, smell, hear, see) Materials Natural and man-made Wood, plastic, fabric, glass, metal Same/different Rough, hard, soft, bendy, clear, smooth Seasons: Autumn, Winter, Spring, Summer Life cycles Animals Plants Living things Care for the environment Plants- seed, stem, leaf, flower, water, sunlight Weather- sunshine, rain, wind, thunder and lightning, snow and fog Sink and float Sounds Light, dark and shadows

Curriculum Map
Subject – Whole School

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Y1	**Animals Including Humans** What are our five senses?	**Everyday Materials** How do you know if an object floats or sinks?	**Seasonal changes** How are the four seasons different?	**Plants** Are all plants the same?	**Plants** **(continued)** What kind of trees can we find in Manchester?	**Animals Including Humans** How are animals different?
Y2	**Materials** Which material is the most suitable for a superhero cape?	**Materials** **(continued)**	**Animals Including Humans** How do animals and humans survive through each stage of life?	**Plants** How do seeds and bulbs grow into mature plants?	**Plants** **(continued)**	**Living things and their habitat** How can a habitat keep a living thing alive?
Y3	**Rocks** What are rocks?	**Forces and magnets** How do forces affect how objects move?	**Light** What is light?	**Light (continued)**	**Plants** Do plants reproduce?	**Animals, including humans** Are animals and humans similar?

Curriculum Map
Subject – Whole School

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Y4	**Animals including humans** How do Animals (including humans), eat?	**Sound** What is sound?	**Living things** How do living things survive?	**Solids, liquids and gases** What are 'States of Matter'?	**Solids, liquids and gases** Continued	**Electricity** How does electricity turn on the TV?
Y5	**Properties of materials** How do I know which materials are best to use for different things?	**Forces and magnets** How do different forces act?	**Changes of materials** If I change a material, can I always change it back?.	**Earth and Space** How does the Solar System move?	**Animals, including humans** How do I change as I get older?	**Living things and their habitats** Are the life cycles of plants and animals the same?
Y6	**Electricity** What factors affect electrical circuits?	**Animals Including Humans** How important is the heart?	**Living Things and Their Habitats** How do we classify living things?	**Evolution and Inheritance** How does natural selection help a species to survive?	**Evolution and Inheritance** How does natural selection help a species to survive?	**Light** Why do we need light to see?

Curriculum Map
Subject – Overview Y1

Autumn 1 Topic focus **Animals including humans**	Autumn 2 Topic focus **Everyday materials**	Spring 1 Topic focus **Seasonal changes**	Spring 2 Topic focus **Plants**	Summer 1 Topic focus **Plants**	Summer 2 Topic focus **Animals**
What are our five senses?	**How do you know if an object floats or sinks?**	**How are the four seasons different?**	**Are all plants the same?**	**What kind of trees can we find in Manchester?**	**How are animals different?**
What is Science? What are our body parts? How are our bodies different? What sounds can I see and hear around school? What are the different types of taste? What are our five senses?	What are materials? What are these objects made of? Do all materials feel the same? What materials could I use to make an umbrella? How will we test if an object sinks or floats? Which objects do you think will sink or float?	What do you know about seasons already? Does the weather always stay the same? How does the weather change across the seasons? Are the days longer in winter? How can we measure changes in the weather?	What do you know about plants already? What are the parts of a flower? What does a flower look like when it grows? Which plants grow in the wild? Are all plants the same?	Can you label parts of a tree? What are different trees called? What is the difference between deciduous and evergreen trees? What kind of trees grow in our forest school area? What kind of trees grow in Manchester?	What do you know about animals already? Do all animals live on the land? How different do animals look? Is a human an animal? Do all animals eat the same food? How do animals move?
Key Vocabulary: Head, body, eyes, ears, mouth, teeth etc Senses – touch, see, smell, taste, hear, fingers (skin), eyes, nose, ear and tongue	**Key Vocabulary:** Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see-through, not see-through.	**Key Vocabulary:** Weather (sunny, rainy, windy, snowy etc.) Seasons (winter, summer, spring, autumn) Sun, sunrise, sunset, day length	**Key Vocabulary:** Leaf, flower, blossom, petal, fruit, berry, root, seed, stem, bark, stalk, bud. Names of garden and wild flowering plants in the local area.	**Key Vocabulary:** Leaf, flower, blossom, petal, fruit, berry, root, seed, stem, bark, stalk, bud, trunk, branch. Names of common trees in the local area.	**Key Vocabulary:** Names of animals experienced first-hand from each vertebrate group Leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves.

Substantive Knowledge End Points Y1

Autumn 1 Topic focus **Animals including Humans**	Autumn 2 Topic focus **Everyday materials**	Spring 1 Topic focus **Seasonal changes**	Spring 2 Topic focus **Plants**	Summer 1 Topic focus **Plants**	Summer 2 Topic focus **Animals**
What are our five senses?	**How do you know if an object floats or sinks?**	**How are the four seasons different?**	**Are all plants the same?**	**What kind of trees can we find in Manchester?**	**How are animals different?**
Identify and compare a variety of common animals and their structures To know the basic parts of the human body, including the parts responsible for the 5 senses	**To identify, group and describe everyday materials using their properties.** • Group every day materials into metals, rock, fabrics, wood, plastic and glass. • Distinguish between an object and the material it is made from. (This is a table it is made of wood, this is a window it is made of glass, etc) • Know how to sort and compare everyday materials using hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see-through, not see-through.	**To understand that we experience four seasons.** • To know different types of weather. • To know the names of the four seasons. • To understand the differences in the local environment inc living things, throughout the year • To understand how things in my life change during the seasons. i.e. the clothes I wear, the activities I do etc.	**Identify, name and describe a variety of plants** • To name some garden plants • To name some wild plants • To understand the term evergreen • To label a plant: roots, stem (trunk), petals or flowers	**Identify, name and describe a variety of plants** • To name some garden plants • To name some wild plants • To understand the term evergreen • To label a plant: roots, stem (trunk), petals or flowers	**Identify and compare a variety of common animals and their structures** • To name a variety of animals (fish, amphibians, reptiles, birds and mammals) • To understand the terms carnivores, herbivores & omnivores. • To name animals that are carnivores, herbivores & omnivores • To compare the structures of a variety of common animals (e.g. wings, ears, tails)
Key Vocabulary: Head, body, eyes, ears, mouth, teeth etc Senses – touch, see, smell, taste, hear, fingers (skin), eyes, nose, ear and tongue	**Key Vocabulary:** Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see-through, not see-through.	**Key Vocabulary:** Weather (sunny, rainy, windy, snowy etc.) Seasons (winter, summer, spring, autumn) Sun, sunrise, sunset, day length	**Key Vocabulary:** Leaf, flower, blossom, petal, fruit, berry, root, seed, stem, bark, stalk, bud. Names of garden and wild flowering plants in the local area.	**Key Vocabulary:** Leaf, flower, blossom, petal, fruit, berry, root, seed, stem, bark, stalk, bud, trunk, branch. Names of common trees in the local area.	**Key Vocabulary:** Names of animals experienced first-hand from each vertebrate group Leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves.

Working Scientifically End Points Y1

Questioning	Investigating	Drawing Conclusions	Identifying and classifying	Recording and Presenting
Ask some simple questions using everyday language and begin to use some simple scientific words. Begin to recognise that questions can be answered in different ways such as: observing changes over time, grouping and classifying and simple tests. With support, use observations and ideas to suggest answers to questions.	**Begin to perform simple tests.** Begin to use practical resources to gather evidence to answer questions. With support, carry out: tests to classify; comparative tests; pattern seeking enquiries; and make observations over time.	**Suggest answers to questions.** Describe what happened and whether they were surprised at the findings or not. Begin to orally answer questions based upon their findings and their experiences of the world.	**Use their observations to identify & classify.** Make careful observations to identify features and notice changes. Sort and group living things or materials using similarities and differences. Use simple charts to identify unknown animals and plants. Begin to identify and describe how they group items.	**With support, record and present simple findings and ideas.** To begin to draw diagrams and label. To draw pictures (or take photographs) over a period of time. To present grouping in a simple format. To begin to complete simple tally tables, block graphs and pictograms. To present findings orally.

Curriculum Map
Subject – Overview Y2

Autumn 1 Topic focus **Materials**	Autumn 2 Topic focus **Materials (continued)**	Spring 1 Topic focus **Animals including humans**	Spring 2 Topic focus **Plants**	Summer 1 Topic focus **Plants (continued)**	Summer 2 Topic focus **Living things and their habitat**
Which material is the most suitable for a superhero cape?	**Which material is the most suitable for a superhero cape?**	**How do animals and humans survive through each stage of life?**	**How do seeds and bulbs grow into mature plants?**	**How do seeds and bulbs grow into mature plants?**	**How can a habitat keep a living thing alive?**
What do you know about materials already? Where can we find everyday materials? What are the uses of everyday materials? How are materials used outside of our school? How can we classify and group materials? How can materials change shape?	How can we compare the suitability of materials? Which material do you predict will be the most suitable for a superhero cape? Which material is the most suitable for a superhero cape? What is your conclusion? What vocabulary can you use and explain?	What do you know about animals and humans already? What is an offspring? Are all life cycles the same? What are the stages of the human life cycle? What do animals and humans need to survive? Why do we exercise? What is the importance of healthy living and hygiene?	What do you know about plants already? What do you notice when you observe plants, leaves and trees? What do plants need to grow and survive? What happens when we change growth variables? Is it a seed or a bulb?	What might you observe if you plant a sunflower seed? What is the life cycle of a seed? What might you observe if we plant a hyacinth bulb? What is the life cycle of a bulb? What are your observations, recordings and growth findings? What is the same and what is different about seeds and bulbs?	What do you already know? Which things are living, dead or have never been alive? What is a suitable habitat? Which living things live in our local habitat? What is a microhabitat? Can you explain a food chain? How can a habitat keep a living thing alive?
Key Vocabulary: Names of materials – wood, metal, plastic, glass, brick, rock, paper, cardboard. Properties of materials – as for Year 1 plus opaque, transparent and translucent, reflective, non-reflective, flexible, rigid.	**Key Vocabulary:** Shape, push/pushing, pull/pulling, twist/twisting, squash/squashing, bend/bending, stretch/stretching.	**Key Vocabulary:** Offspring, reproduction, growth, child, young/old stages (examples - chick/hen, baby/child/adult,caterpillar/butterfly), exercise, heartbeat, breathing, hygiene, germs, disease, food types (examples – meat, fish, vegetables, bread, rice, pasta)	**Key Vocabulary:** Leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud	**Key Vocabulary:** Names of trees in the local area Names of garden and wild flowering plants in the local arealight, shade, sun, warm, cool, water, grow, healthy.	**Key Vocabulary:** Living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed Names of local habitats e.g. pond, woodland etc. Names of micro-habitats e.g. under logs, in bushes etc.

Substantive Knowledge End Points Y2

Autumn 1 Topic focus **Materials**	Autumn 2 Topic focus **Materials (continued)**	Spring 1 Topic focus **Animals including humans**	Spring 2 Topic focus **Plants**	Summer 1 Topic focus **Plants (continued)**	Summer 2 Topic focus **Living things and their habitat**
Which material is the most suitable for a superhero cape?		**How do animals and humans survive through each stage of life?**	**How do seeds and bulbs grow into mature plants?**		**How can a habitat keep a living thing alive?**
To compare materials suitability for different uses. • To recognise that some materials can change shape by applying a force. • To understand why a material is suitable or not suitable for a specific purpose using the vocabulary, opaque, transparent and translucent, reflective, non-reflective, flexible, rigid. • To label a picture or diagram of an object made from a combination of different materials • describing their properties. e.g. house is made from bricks, slate, glass because … • To understand what properties a suitable material needs to have. • To know how the shape of a material can be changed in a variety of ways - squashing, bending, twisting and stretching.		**Understand how animals, including humans grow into healthy adults** • To understand the term offspring • To know offspring grow into adults • To know that some offspring don't look like their adult • To know that animals, including animals need water, food & air to survive • To know to grow into a healthy adult the importance of exercise, healthy eating and hygiene	**Know how to grow a healthy plant** • To know a plant starts as a seed or a bulb • To observe and describe how seeds and bulbs grow. • To know that plants need water, light and warmth to grow and stay healthy.		**To understand the importance of a habitat** • To compare things that are living, dead and never been alive • To name a variety of plants/animals suited to a habitat/microhabitat (movement, finding food) • To understand that habitats provide shelter, food & water for animals & plants • To understand that plants/animals within a habitat depend on each other • To construct a simple food chain starting with a plant.
Key Vocabulary: Names of materials – wood, metal, plastic, glass, brick, rock, paper, cardboard. Properties of materials – as for Year 1 plus opaque, transparent and translucent, reflective, non-reflective, flexible, rigid.	**Key Vocabulary:** Shape, push/pushing, pull/pulling, twist/twisting, squash/squashing, bend/bending, stretch/stretching.	**Key Vocabulary:** Offspring, reproduction, growth, child, young/old stages (examples - chick/hen, baby/child/adult,caterpillar/butterfly), exercise, heartbeat, breathing, hygiene, germs, disease, food types (examples – meat, fish, vegetables, bread, rice, pasta)	**Key Vocabulary:** Leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud	**Key Vocabulary:** Names of trees in the local area Names of garden and wild flowering plants in the local arealight, shade, sun, warm, cool, water, grow, healthy.	**Key Vocabulary:** Living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed Names of local habitats e.g. pond, woodland etc. Names of micro-habitats e.g. under logs, in bushes etc.

Working Scientifically End Points Y2

Questioning	Investigating	Drawing Conclusions	Identifying and classifying	Recording and Presenting
Ask simple questions using everyday language and year 2 scientific language. Recognise that questions can be answered in different ways such as: observing changes over time, grouping and classifying, simple tests, researching using secondary sources and noticing patterns. Use observations and ideas to suggest answers to questions.	**Perform simple tests** Use practical resources to gather evidence to answer questions. Carry out: tests to classify; comparative tests; pattern seeking enquiries; and make observations over time.	**Suggest answers to questions and begin to look for patterns** Use observations from their investigations to answer questions based upon their findings and their experiences of the world With support, begin to look for changes, patterns, similarities and differences in their findings	**Use given criteria to identify and classify.** Sort and classify things according to given criteria. Classify items using simple prepared tables and sorting rings. Describe the characteristics they used to identify a living thing.	**Record and present simple findings and ideas** To draw diagrams, using observations, and label parts, including over a period of time To present grouping in a given format To complete simple tally tables, block graphs and pictograms with a simple scale To present findings orally, with simple scientific language, and visually.

Curriculum Map
Subject – Overview Y3

Autumn 1 Topic focus **Rocks**	Autumn 2 Topic focus **Forces and magnets**	Spring 1 Topic focus **Light**	Spring 2 Topic focus **Light continued**	Summer 1 Topic focus **Plants**	Summer 2 Topic focus **Animals, including humans**
What are rocks?	**How do forces affect how objects move?**	**What is light?**	**Continued from Spring 1**	**Do plants reproduce?**	**Are animals and humans similar?**
Are all rocks the same? How are rocks different? What is a rock cycle? Who is Mary Anning? What is soil made from?	What is a force? How do different surfaces affect the movement of an object? Are all magnets the same? Are all metals magnetic? How do magnets work?	• What is light and dark? • How does light travel? • Which colours are better seen in low light? •How can we protect our eyes from the suns light? How can we make shadows dance?		What are the functions of different plant parts? Do plants have a life cycle like animals do? What do plants need to grow? How is water transported around a plant? How do plants reproduce?	Why do we have a skeleton? What's the difference between a vertebrate and an invertebrate? What bones do we have in our bodies? Can you live without muscles? What nutrients do animals and humans need?
Key Vocabulary: Rock, stone, pebble, boulder, layers, hard, soft, texture, soil, fossil, marble, chalk, granite, sandstone, slate, sandy, chalk, clay, soil, metamorphic, sedimentary, igneous.	**Key Vocabulary:** Force, push, pull, twist, contact force, non-contact force, magnetic force, magnet, strength, bar magnet, ring magnet, button magnet, horseshoe magnet, attract, repel, magnetic material, metal, iron, steel, poles, north pole, south pole.	**Key Vocabulary:** Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous		**Key Vocabulary:** Photosynthesis, pollen, insect/wind pollination, seed formation, seed dispersal (wind dispersal, animal dispersal, water dispersal)	**Key Vocabulary:** Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, joints, support, protect, move, skull, ribs, spine

Substantive Knowledge End Points Y3

Autumn 1 Topic focus **Rocks**	Autumn 2 Topic focus **Forces and magnets**	Spring 1 Topic focus **Light**	Spring 2 Topic focus **Light continued**	Summer 1 Topic focus **Plants**	Summer 2 Topic focus **Animals, including humans**
What are rocks?	**Which surface creates the most friction?**	**What is light?**		**Do plants reproduce?**	**Are animals and humans similar?**
To identify and compare rocks, fossils and soils. To know that rock is a naturally occurring material. To know the name of some types of rock including **marble, chalk, granite, sandstone, slate.** To know examples of **igneous** (granite), **sedimentary** (sandstone, chalk) and **metamorphic** (slate marble) rock. To understand the vocabulary of (grain, crystals, layers, hard, soft, texture, absorb water) to describe the observable features of the named rocks. To understand how a fossil is formed. To understand that soils are a mixture of rocks and living/dead matter.	**To know that forces are a push or a pull in a direction and understand magnetism.** To know examples of forces in everyday life. To understand that objects can move differently on different surfaces. To know that magnets have two poles which attract and repel. To understand that not all metals are magnetic/attracted to a magnet.	**To understand light is an energy that can be manipulated.** To understand darkness is the absence of light. To know how we see objects in light. To understand that it is dangerous to view the sun directly and state precautions used to view the sun, for example in eclipses. To know the terms transparent, translucent and opaque To understand how shadows are formed To understand how shadows change size.		**Know the functions of different parts of flowering plants.** To explain the function of the roots, stem/trunk, leaves & flowers To know the requirements plants, need to grow: air, light, water, nutrients from soil and room to grow To know that different plants require different amounts of air To know that water travels from the soil, to the roots to the stem and the To understand the term pollination (using male and female parts) To know 3 forms of seed dispersal – wind, animal, water (river/stream/canal)	**Understand the function of a skeleton and muscles.** To know the names of some bones (skull, spine, ribs) To know the purpose of the skeleton and muscles – movement, protection, support.
Key Vocabulary: Rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorb water, soil, fossil, marble, chalk, granite, sandstone, slate, soil, peat, sandy/chalk/clay soil	**Key Vocabulary:** Force, push, pull, twist, contact force, non-contact force, magnetic force, magnet, strength, bar magnet, ring magnet, button magnet, horseshoe magnet, attract, repel, magnetic material, metal, iron, steel, poles, north pole, south pole.	**Key Vocabulary:** Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous		**Key Vocabulary:** Photosynthesis, pollen, insect/wind pollination, seed formation, seed dispersal (wind dispersal, animal dispersal, water dispersal)	**Key Vocabulary:** Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, joints, support, protect, move, skull, ribs, spine

Working Scientifically End Points Y3

Questioning	Investigating	Drawing Conclusions	Identifying and classifying	Recording and Presenting
Begin to ask some relevant questions using scientific language. Begin to make some decisions about which type of enquiry will be the best way of answering questions including: observing over time; pattern seeking; identifying, classifying and grouping; comparative and fair testing (controlled investigations); and researching using secondary sources.	**Begin to set up simple practical enquiries, comparative and fair tests** Begin to select practical resources to gather evidence to answer questions generated by themselves or given to them. With support, they follow their plan to carry out: observations and tests to classify; comparative and simple fair tests; observations over time; and pattern seeking.	**Draw simple conclusions and raise further questions** Begin to use straightforward scientific evidence to answer questions or to support their findings using age-appropriate scientific language. With support, begin to look for changes, patterns, similarities and differences in their results in order to draw simple conclusions using age-appropriate scientific language. With support, begin to identify new questions arising from the results and make new predictions.	**Identify and classify in different ways.** Record classifications using Venn diagrams, Carroll diagrams, tables etc. Compare, classify and group items using Scientific criteria (e.g. magnetic, not magnetic). Independently, classify and group in different ways.	**With support, record and present results and ideas** To produce detailed labelled diagrams using observations, including over a period of time To begin to present results by creating or completing Venn and Carroll diagrams, tally, columned tables and simple bar charts, using scales To present results orally, visually or in written form with support, using simple scientific language.

Curriculum Map
Subject – Overview Y4

Autumn 1 Topic focus **Animals including humans**	Autumn 2 Topic focus **Sound**	Spring 1 Topic focus **Living things**	Spring 2 Topic focus **States of matter**	Summer 1 Topic focus **States of matter (continued)**	Summer 2 Topic focus **Electricity**
How do Animals (including humans), eat?	**What is sound?**	**How do living things survive?**	**What are 'States of Matter'?**	**What are 'States of Matter'?**	**How does electricity turn on the TV?**
What are the parts of the digestive system? What are the functions of the organs within the digestive system? What do the different teeth in our mouth do? Why do animals have different teeth? What is a food chain? What nutrients are in different foods?	What makes sound?. What can sound travel through? Which materials are best at insulating sound? What happens to sound as distance increases? What is Pitch?	What are living things? How can we group living things? Can we classify living things in a local environment? How can habitats and environments change?	What are the 3 states of matter? What is the difference between the three states of matter? What is melting and freezing? What happens when we boil something? What is the water cycle?		How does electricity work at home? Where does electricity come from? How can we make sure we are safe when using electricity at home? What are the dangers around electricity? What is an electrical circuit? What are conductors and insulators? What makes a complete circuit?
Key Vocabulary: Digestive system, digestion, mouth, teeth, saliva, oesophagus, stomach, small intestine, nutrients, large intestine, rectum, anus, teeth, incisor, canine, molar, premolars, herbivore, carnivore, omnivore, producer, predator, prey, food chain.	**Key Vocabulary:** Sound, source, vibrate, vibration, travel, pitch (high, low), volume, faint, loud, insulation.	**Key Vocabulary:** Classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate.	**Key Vocabulary:** Solid, liquid, gas, state change, melting, freezing, melting point, boiling point, evaporation, temperature, water cycle.	**Key Vocabulary:** Solid, liquid, gas, state change, melting, freezing, melting point, boiling point, evaporation, temperature, water cycle.	**Key Vocabulary:** Electricity, electrical appliance/device, mains, plug, electrical circuit, complete circuit, component, cell, battery, positive, negative, connect/connections, loose connection, short circuit, crocodile clip, bulb, switch, buzzer, motor, conductor, insulator, metal, non-metal, symbol.

Substantive Knowledge End Points Y4

Autumn 1 Topic focus **Animals including humans**	Autumn 2 Topic focus **Sound**	Spring 1 Topic focus **Living things**	Spring 2 Topic focus **States of matter**	Summer 1 Topic focus **States of matter (continued)**	Summer 2 Topic focus **Electricity**
How do Animals (including humans), eat?	**What is sound?**	**How do living things survive?**	**What are 'States of Matter'?**		**How does electricity turn on the TV?**
To understand the journey of food through the human body. To know the nutrients found in food: carbohydrates, protein, vitamins, minerals, fats, sugars, fibre To know a balance of nutrients is needed to stay healthy	**To know that sound is a vibration which travels through a medium to the ear.** To understand that sound is a type of energy created by vibrations; the louder the sound, the bigger the vibration. To understand that sound travels from its source in all directions and we hear it when it travels to our ears. To know that sound travel can be blocked. To know that sound moves through all materials by making them vibrate; changing the way an object vibrates changes its sound. To know that sound volume changes dependant on the distant from the sound source To know that faster vibrations (higher frequencies) produce higher pitched sounds	**To classify living things and understand how habitats can change.** To know how to group living things in a variety of ways (key features) To use a classification key To know some positive ways humans can impact a habitat (e.g. nature reserves) To know some negative ways habitats can be humans or nature can impact a habitat (e.g. littering, deforestation)	**To recognise that materials can change state by heating and cooling.** To understand materials can be grouped into solids, liquids and gases. To understand how heating causes solids to melt into liquids and liquids to evaporate into gases. To understand how cooling causes gases to condense into liquids and liquids to freeze into solids. To know melting point of water is 0°C and the boiling point is 100°C. To know that the higher the temperature the faster the rate of evaporation. To understand how condensation and evaporation occur within the water cycle.		**To know how a simple electric circuit works.** To know that electricity is a form of energy. To understand that a source of electricity (mains or battery) is needed for electrical devices to work. To know that electricity sources push electricity round a circuit. To understand a complete circuit is needed for electricity to flow and devices to work. To understand that some materials allow electricity to flow easily and these are called conductors. To know that materials that don't allow electricity to flow easily are called insulators.
Key Vocabulary: Digestive system, digestion, mouth, teeth, saliva, oesophagus, stomach, small intestine, nutrients, large intestine, rectum, anus, teeth, incisor, canine, molar, premolars, herbivore, carnivore, omnivore, producer, predator, prey, food chain.	**Key Vocabulary:** Sound, source, vibrate, vibration, travel, pitch (high, low), volume, faint, loud, insulation.	**Key Vocabulary:** Classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate.	**Key Vocabulary:** Solid, liquid, gas, state change, melting, freezing, melting point, boiling point, evaporation, temperature, water cycle.	**Key Vocabulary:** Solid, liquid, gas, state change, melting, freezing, melting point, boiling point, evaporation, temperature, water cycle.	**Key Vocabulary:** Electricity, electrical appliance/device, mains, plug, electrical circuit, complete circuit, component, cell, battery, positive, negative, connect/connections, loose connection, short circuit, crocodile clip, bulb, switch, buzzer, motor, conductor, insulator, metal, non-metal, symbol.

Working Scientifically End Points Y4

Questioning	Investigating	Drawing Conclusions	Identifying and classifying	Recording and Presenting
Ask a range of relevant questions using scientific language. Make some decisions about which type of enquiry will be the best way of answering questions including: observing over time; pattern seeking; identifying, classifying and grouping; comparative and fair testing (controlled investigations); and researching using secondary sources.	**Set up simple practical enquiries, comparative and fair tests** Select from a range of practical resources to gather evidence to answer questions generated by themselves or given to them. They follow their plan to carry out: observations and tests to classify; comparative and simple fair tests; observations over time; and pattern seeking.	**Use results to draw simple conclusions, suggest improvements and raise further questions** Use straightforward scientific evidence to answer questions or to support their findings using age-appropriate scientific language. See patterns in results; begin to say what has been found out, linking cause and effect to develop simple conclusions. using age-appropriate scientific language. With support, begin to identify new questions arising from the results, make new predictions and suggest ways of improving what they have already done.	**With support, use similarities and differences in order to group and identify.** Begin to identify similarities/ differences/ changes when talking about scientific processes. Use and begin to create simple keys.	**Record and present results and ideas** To produce detailed labelled diagrams using observations, including over a period of time To present results by creating or completing Venn and Carroll diagrams, simple keys, tally, columned tables and simple bar charts, using scales To present results orally, visually or in written form, using key vocabulary and scientific language.

Curriculum Map
Subject – Overview Y5

Autumn 1 Topic focus **Properties of materials**	Autumn 2 Topic focus **Forces and magnets**	Spring 1 Topic focus **Changes of materials**	Spring 2 Topic focus **Earth and Space**	Summer 1 Topic focus **Animals, including humans**	Summer 2 Topic focus **Living things and their habitats**
How do I know which materials are best to use for different things?	**How do different forces act?**	**If I change a material, can I always change it back?.**	**How does the Solar System move?**	**How do I change as I get older?**	**Are the life cycles of plants and animals the same?**
What are the properties of different materials? Which materials dissolve in liquid to form a solution? How will I gather evidence to answer a scientific question? How do I reverse changes in materials? Which materials are electrical conductors? Which materials are thermal insulators? Which material will be the best to use to create an insulation cup?	What is a force? Why do objects fall down? What is friction? What is water resistance? What are mechanisms used for? Can I design a rocket using what I have learnt?	How do I get materials back once they are mixed? What is a chemical reaction? How do magnets help me separate materials? What does heating do? If I change a material, can I always change it back?.	What shape are the Earth, the Sun and the Moon? What is the Solar System and how do the planets move? How do the Earth and the Moon move together? Why do we have day and night? Why does the moon appear to be different shapes in the sky?	What are the stages of a human life cycle? What is gestation? What changes happen during childhood? What changes happen after childhood?	How are life cycles similar and different from each other? What is reproduction? How do plants reproduce through pollination? How do plants reproduce asexually? How do mammals reproduce?
Key Vocabulary: Thermal/electrical insulator/conductor, change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve, reversible/non-reversible change, burning, rusting, new material	**Key Vocabulary:** Force, gravity, Earth, air resistance, water resistance, friction, mechanisms, simple machines, levers, pulleys, gears	**Key Vocabulary:** Thermal/electrical insulator/conductor, change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve, reversible/non-reversible change, burning, rusting, new material	**Key Vocabulary:** Earth, Sun, Moon, (Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune), spherical, solar system, rotates, star, orbit, planets	**Key Vocabulary:** Puberty – the vocabulary to describe sexual characteristics	**Key Vocabulary:** Life cycle, reproduce, sexual, sperm, fertilises, egg, live young, metamorphosis, asexual, plantlets, runners, bulbs, cuttings

Substantive Knowledge End Points Y5

Autumn 1 Topic focus **Properties of materials**	Autumn 2 Topic focus **Forces and magnets**	Spring 1 Topic focus **Changes of materials**	Spring 2 Topic focus **Earth and Space**	Summer 1 Topic focus **Animals, including humans**	Summer 2 Topic focus **Living things and their habitats**
How do I know which materials are best to use for different things?	**How do different forces act?**	**If I change a material, can I always change it back?.**	**How does the Solar System move?**	**How do I change as I get older?**	**Are the life cycles of plants and animals the same?**
To justify materials suitability for different uses To know how to group everyday materials based upon properties including their hardness, solubility, transparency, conductivity *(electrical and thermal), and response to magnets. (Electricity covered in Year 4 and magnets covered in Y3)* To know that some materials will dissolve in liquid to form a solution, these are **soluble** and solids that do not dissolve are **insoluble**. To understand why a material is suitable or not suitable for a specific purpose based upon its physical properties.	**To know that there are different types of forces and understand their different effects** To understand that air resistance and water resistance are forces against motion caused by objects having to move air and water out of their way. To know that friction is a force against motion caused by two surfaces rubbing against each other. To understand that some objects require large forces to make them move; gears, pulley and levers can reduce the force needed to make things move. To know that some objects/animals are streamlined to minimise the effects of air/water resistance.	**To identify that changes can be reversible or irreversible.** To understand when some materials are mixed, they can be separated by sieving, filtering, evaporating or by magnetic properties. These changes are reversible. To understand that when some materials are mixed a chemical reaction can create a change of state or a new material. These changes are **irreversible** e.g. burning and rusting. To understand that heating can sometimes cause materials to change permanently. When this happens, a new substance is made.	**To know and understand the movement of the Earth, Moon and other planets in the Solar System.** To know the approximate shape of the Sun, Earth and Moon – Spherical To understand the movement of planets in the Solar System To know how the Earth and Moon moves. To understand why we have day and night. To know the moon has different phases.	**Understand how humans develop to old age.** To know the stages of the human life cycle To identify specific steps in each stage (baby – crawling, teenage – puberty)	**Understand the life cycles of a variety of plants & animals.** To know the terms sexual and asexual reproduction To know how plants, reproduce sexually (through pollination) To know how plants, reproduce asexually (through bulbs, tubers, runners, plantlets) To know how different animals, reproduce sexually To compare the life cycles of different animals (mammals, insects, birds, amphibians, reptiles)
Key Vocabulary: Thermal/electrical insulator/conductor, change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve, reversible/non-reversible change, burning, rusting, new material	**Key Vocabulary:** Force, gravity, Earth, air resistance, water resistance, friction, mechanisms, simple machines, levers, pulleys, gears	**Key Vocabulary:** Thermal/electrical insulator/conductor, change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve, reversible/non-reversible change, burning, rusting, new material	**Key Vocabulary:** Earth, Sun, Moon, (Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune), spherical, solar system, rotates, star, orbit, planets	**Key Vocabulary:** Puberty – the vocabulary to describe sexual characteristics	**Key Vocabulary:** Life cycle, reproduce, sexual, sperm, fertilises, egg, live young, metamorphosis, asexual, plantlets, runners, bulbs, cuttings

Working Scientifically End Points Y5

Questioning	Investigating	Drawing Conclusions	Identifying and classifying	Recording and Presenting
Begin to ask some significant scientific questions based on scientific concepts. Begin to plan different types of scientific enquiries to answer questions: observing over time; pattern seeking; identifying, classifying and grouping; comparative and fair testing (controlled investigations, including recognising and controlling variables); and researching using secondary sources.	**Plan different types of scientific enquiries to answer questions** Begin to decide for themselves how to gather evidence to answer a scientific question, choosing a type of enquiry to carry out. Select from a range of practical resources to gather evidence. Begin to recognise how secondary sources can be used to answer questions. Decide what observations or measurements to make over time and for how long. With support, look for patterns and relationships using a suitable sample. Carry out fair tests, beginning to recognise and control variables.	**Draw conclusions, including any causal relationships and scientific explanations and set up further linked investigations** Identify scientific evidence to support or refute ideas or arguments. Draw conclusions based on their data and observations, use evidence to justify their ideas, use scientific knowledge and understanding to explain their findings. Use their findings to identify when further tests and observations are needed.	**Use similarities and differences in order to group and identify.** Accurately, identify similarities/ differences/ changes when talking about scientific processes and materials.	**With support, record and present data and ideas in detail** To produce detailed labelled diagrams using observations, including over a period of time To present data by creating Venn and Carroll diagrams, keys, columned tables, scatter graphs, bar charts and line graphs, using appropriate scales To present results orally, visually and in written form, using key vocabulary and scientific language

Curriculum Map
Subject – Overview Y6

Autumn 1 Topic focus **Electricity**	Autumn 2 Topic focus **Animals including humans**	Spring 1 Topic focus **Living things and their habitats**	Spring 2 Topic focus **Evolution and Inheritance**	Summer 1 Topic focus **Evolution and inheritance (continued)**	Summer 2 Topic focus **Light**
What factors affect electrical circuits?	**How important is the heart?**	**How do we classify living things?**	**How does natural selection help a species to survive?**		**Why do we need light to see?**
What do I already know about electricity? How can you fix broken circuits? How do you draw electrical circuits? How does voltage affect a circuit? Which variable affects the brightness of a bulb?	What causes your BPM to go up or down? How does blood travel around the body? What is blood made of? How does the heart function? What affects the circulatory system?	What are the key characteristics of organisms? How do we classify organisms with similar characteristics? How do we classify plants? Who was Carl Linnaeus and what did he achieve? How can we classify organisms in our local environment?	What are fossils? What can we learn from fossils? How does a species ensure they survive? How does inheritance link to the idea of natural selection? Why are not all organisms in a species identical?		What is light and how does it travel? How do we see light? How does light react on different surfaces? Can we change the direction of light? What shape should a shadow be?
Key Vocabulary: Circuit, complete circuit, circuit diagram, circuit symbol, cell, battery, bulb, buzzer, motor, switch, voltage	**Key Vocabulary:** Heart, pulse, rate, pumps, blood, blood vessels, transported, lungs, oxygen, carbon dioxide, nutrients, water, muscles, cycle, circulatory system, diet, exercise, drugs, lifestyle	**Key Vocabulary:** Vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, insects, spiders, snails, worms, flowering, non-flowering	**Key Vocabulary:** Offspring, sexual reproduction, vary, characteristics, suited, adapted, environment, inherited, species, fossils.		**Key Vocabulary:** Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous, straight lines, light rays

Substantive Knowledge End Points Y6

Autumn 1 Topic focus **Electricity**	Autumn 2 Topic focus **Animals including humans**	Spring 1 Topic focus **Living things and their habitats**	Spring 2 Topic focus **Evolution and Inheritance**	Summer 1 Topic focus **Evolution and inheritance**	Summer 2 Topic focus **Light**
What factors affect electrical circuits?	**How important is the heart?**	**How do we classify living things?**	**How does natural selection help a species to survive?**		**Why do we need light to see?**
To know and understand that the amount of voltage in a circuit can affect the output of a component inc brightness, volume, and speed. To know that batteries/cells are a store of energy and this energy pushes electricity around the circuit. To know that battery/cell energy is measured in voltage. To understand that when the battery's/cell's energy is gone it stops pushing. (Voltage measures the 'push.') To know the symbols for: lamp, wire, buzzer, cell, battery, motor, switch (open), switch (closed). To understand that a series circuit will not work if a lamp is broken or a wire is disconnected. To understand how to vary the output of a component e.g. bulb, buzzer, motor.	**To understand the importance of a healthy circulatory system.** To know the main parts of the circulatory system and their function (heart, blood vessels and blood) To know that water and nutrients are transported in the blood To understand the effect of lifestyle choices (diet, exercise, drugs) on your circulatory system	**To classify living things based on specific and common characteristics.** To know that living things can be grouped into plants, animals and microorganisms To understand the terms vertebrate and invertebrates To know animals can be grouped into vertebrates and invertebrates To know the common characteristics of the vertebrates' group - fish, amphibians, reptiles, birds, mammals To know that invertebrates can be grouped into insects, spiders, snails and worms. To know plants can be grouped into flowering and non-flowering	**Describe how living things have adapted and evolved over time.** To understand the terms evolution and inheritance. To know that fossils provide information about living things that inhabited the Earth millions of years ago. To recognise that living things have adapted and evolved over time to survive within the environment. To understand that organisms reproduce and offspring inherit similar characteristics. To know that variation exists within a population and between offspring of some plants.		**To understand that light travels in straight lines and to know how we see objects.** To understand that animals see light sources when light travels from the source into their eyes. To understand that animals see objects when light is reflected off that object and enters their eyes. To know that light reflects off all objects (unless they are black). Non-shiny surfaces scatter the light so we don't see the beam. To know that light travels in straight lines, called rays or beams of light To know that shadows are the same shape as the object because light travels in straight lines.
Key Vocabulary: Circuit, complete circuit, circuit diagram, circuit symbol, cell, battery, bulb, buzzer, motor, switch, voltage	**Key Vocabulary:** Heart, pulse, rate, pumps, blood, blood vessels, transported, lungs, oxygen, carbon dioxide, nutrients, water, muscles, cycle, circulatory system, diet,	**Key Vocabulary:** Vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, insects, spiders, snails, worms, flowering, non-flowering	**Key Vocabulary:** Offspring, sexual reproduction, vary, characteristics, suited, adapted, environment, inherited, species, fossils.		**Key Vocabulary:** Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous, straight lines, light rays

Working Scientifically End Points Y6

Questioning	Investigating	Drawing Conclusions	Identifying and classifying	Recording and Presenting
Ask a range of significant scientific questions based on scientific concepts. Plan the most appropriate type of scientific enquiry to answer questions including: observing over time; pattern seeking; identifying, classifying and grouping; comparative and fair testing (controlled investigations, including recognising and controlling variables); and researching using secondary sources	**Independently, plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary** Decide for themselves how to gather evidence to answer a scientific question, choosing a type of enquiry to carry out and justifying their choice. Independently select from a range of practical resources to gather evidence. Recognise how secondary sources can be used to answer questions. Independently decide what observations or measurements to make over time and for how long. Look for patterns and relationships using a suitable sample. Carry out fair tests, recognising and controlling variables.	**Draw conclusions, including any causal relationships and scientific explanations of and degree of trust in results and set up further linked comparative and fair tests** Identify and explain the scientific evidence to support or refute ideas or arguments. Draw conclusions based on their data and observations, use evidence to justify their ideas, use scientific knowledge and understanding to explain their findings including an analysis of the degree of trust in their findings. Use their findings to identify when further comparative, fair tests and observations are needed.	**Independently, use similarities and differences in order to group and identify.** Independently, identify similarities/ differences/ changes when talking about scientific processes and living things. Use and develop keys to identify, classify and describe living things. Identify and explain patterns seen in the natural environment.	**Independently, record and present data and ideas in detail** To independently produce detailed and accurate labelled diagrams using observations, including over a period of time To choose the most appropriate form to present data: Venn and Carroll diagrams, keys, columned tables, scatter graphs, bar charts and line graphs, using appropriate scales To present results orally, visually and in written form, using relevant key vocabulary and scientific language