CURRICULUM

Science

Intent

At Southville Primary School, we aspire to be scientists. Our science curriculum will teach our children to use a wide range of investigative, practical and observational skills to learn about, appreciate and question the universe around them. We will teach the children to effectively and enthusiastically communicate the scientific knowledge they learn as well as the questions they have. We will teach them to treasure their sense of awe and wonder, and to respect our planet and all living things. We will bring science alive and kindle a lifelong excitement and curiosity about Earth and beyond. We will do this by:

- Making sure that scientific objectives are delivered in the context of an exciting and engaging topic within our Wider Curriculum model.
- Providing our children with opportunities to question, observe, identify, classify, gather data, interpret findings, draw conclusions, predict, measure accurately, prove and explain
- Providing opportunities for practical experiments and different types of scientific enquiries within and across the topic that we cover
- Encouraging children to link their daily experiences to the knowledge they acquire in school and make links between different ideas
- Shaping our lessons and teaching to fulfil the potential of all children
- Providing our children with opportunities to take part in off-site visits, including regular Forest School trips, to get hands-on experiences and broaden their scientific understanding
- Using the vibrancy of our great city and rich experiences and knowledge of the scientists within our local community to enrich our children's learning in science
- Ensuring that real experiences underpin our science teaching, allowing everyone to acquire, play with and master the correct scientific vocabulary for their topic and the world around them.

Implementation

Our Science curriculum is rigorous, challenging, and interconnected, designed to help children become experts in the subject. It fits within our wider curriculum model, where children fully immerse themselves in a specific topic or area of focus for a term, engaging with two 'key driver' subjects (Science, History, Geography, Art, or Design and Technology). As a core subject, Science is a driver in more units. While each unit has a central, overarching focus, Science is valued as its own discipline and is taught discreetly. When Science serves as a 'key driver' subject, it follows a separate plan anchored by a specific 'key question' that guides the unit's exploration and outcomes. Key subject-specific elements integral to most units have been identified, providing a valuable reference for teachers during planning. This ensures that both the substantive knowledge and disciplinary skills of Science are explicitly learned and progressively built upon.

The Science curriculum follows a coherent, well-sequenced plan that ensures pupils progress logically through their learning journey, with clear objectives and outcomes at each stage. Lesson sequences are structured to scaffold learning effectively, with adaptations to meet the diverse needs of all pupils. Mid-term plans align with National Curriculum objectives, ensuring that content and progression meet and go beyond statutory requirements. To deepen learning and make it more relevant, units incorporate a Local Anchor Point, visit/visitor, and key figures, connecting pupils with their local context. Diversity, equity, and inclusion are embedded throughout the curriculum, representing a wide range of perspectives so that all pupils can see themselves reflected in their learning.

To deliver effective and rigorous science lessons, we focus on these essential planning and teaching actions:

- **Build Knowledge**: Identify and embed prior learning; proactively address misconceptions.
- **Vocabulary Focus:** Explicitly teach key scientific vocabulary and allow time for practice.

- **Sequence Concepts**: Give clear explanations and demonstrations, sequencing content in small steps.
- **Ensure Practice**: Provide plenty of time for pupils to apply new knowledge.
- **Develop Skills**: Identify and explicitly teach 'working scientifically' skills (e.g., measuring, observation) within a relevant context.
- **Assess and Recap**: Use questioning to check understanding; routinely recap knowledge from the previous lesson to support retention.

Impact

To ensure our curriculum is effective and continuously improving, subject leaders assess the impact of individual units and the curriculum as a whole through a process of triangulation. This includes looking at the quality of work in books to see how children are demonstrating their learning, reviewing medium-term plans to evaluate how well sequences build on prior knowledge and focus on the most important content, and gathering pupil voice. Through conversations with pupils, subject leaders assess what children know and remember, how well they can make connections to prior learning, and whether the intended learning from the plans has been successfully embedded. We recognise that not all disciplinary knowledge is captured in books, so pupil voice plays a vital role in assessing the broader impact. Findings are then shared with staff to support ongoing refinement of teaching and learning. This may involve adjusting the sequence of lessons, improving models and explanations, or increasing opportunities for consolidation. Where gaps, misconceptions or forgotten learning are identified, teachers plan for re-teaching or revisiting in future units to ensure knowledge is remembered and built upon over time.

Content Overview

	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Autumn	**Seasons** **Plants** **Animals** The deep, dark wood	**Plants** My School **Weather & Seasons** (Throughout school year)	**Materials** Fire Fire!	**Rocks** Savage Stone Age	**States of Matter** Splash! **Animals, including humans** Ancient Egyptians	**Earth and Space** **Forces** Out of this World	**Light** Bristol Street Art
Spring	**Space** Blast off! **Dinosaurs** Dinosaur discovery	**Materials** Balloon Voyage	**Living things and their habitats** **Animals, including humans** Amazon Adventure	**Light** Brilliant Light **Forces and Magnets** To the Ends of the Earth	**Sound** Listen up! **Electricity** Hoo were the Anglo-saxons?	**Properties and changes of Materials** Greatest Greeks	**Evolution and Inheritance** **Living things and their habitats** My, how you've changed!
Summer	**Growing and changing** **Life cycles** From wriggles to wonder **Materials/Cooking** Story time	**Animals, including humans** On Safari	**Plants** Terrific Trees	**Animals, including Humans** Healthy Me **Plants** Oh, grow up!	**Living things and their habitats** Espana	**Forces** The vikings are coming **Animals, Including Humans / Living things and their habitats** Life on Earth	**Animals, including humans** Me, Myself and I **Electricity** Legacy & Identity

NC Coverage Map

	Y1	Y2	Y3	Y4	Y5	Y6
Plants	Plants (structure, growth)	Terrific Trees (growth, lifecycle, environment)	Oh, Grow Up! (functions, transport, reproduction)	–	–	–
Animals including humans	Body parts & senses	Food, offspring, basic needs	Healthy Me (skeleton, muscles, diet)	Digestive System (Egyptians)	Life on Earth (life cycles, reproduction)	Me, Myself & I (circulatory, respiratory, puberty)
Materials / States of Matter	Materials (identify, properties)	Materials (uses & testing)	Rocks & Fossils	Splash! (States of Matter, Water Cycle)	Greatest Greeks (Properties & Changes)	–
Seasonal Changes	Weather & Seasons	–	–	–	–	–
Living Things & Habitats/Classification	–	Amazon Adventure (habitats, food chains)	–	Espana (classification, keys, conservation)	Life on Earth (classification & reproduction)	My, How You've Changed (classification, evolution)
Light	–	–	Brilliant Light	–	–	Bristol Street Art (Light – straight lines, reflection)
Forces & Magnets	–	–	To the Ends of the Earth (forces, magnets)	–	Out of This World (gravity, air resistance, mechanisms)	–
Sound	–	–	–	Listen Up!	–	–
Electricity	–	–	–	Hoo Were the Anglo-Saxons? (Circuits)	–	Electric Motor Vehicle – applied electricity
Earth & Space	–	–	–	–	Out of This World (Earth & Space elements)	–
Evolution & Inheritance	–	–	–	–	–	My, How You've Changed
Rocks	–	–	Savage Stone Age	–	–	–

Enquiry Types Overview

	KS1	LKS2	UKS2
Observing Over Time	**Year 1:** • How does my bean plant change each week? • How does the cherry tree outside the classroom change through the year? **Year 2:** • How does my sunflower plant change each week?	**Year 3:** • What happens to soil when we put it in water? • What happens to the celery when it is left in a glass of coloured water? • What happens to the white flower when it is left in a glass of coloured water? **Year 4:** • How does the water level in a dish on the windowsill change each day? • What happens to our model water cycles over time?	**Year 5:** • What happens to the lemon juice when you add baking soda? • What happens to the diet coke when you add mentos? **Year 6** • How quickly can you recover after exercise? • How does a human embryo change?
Pattern Seeking	**Year 1:** • Which conditions enable the cress to grow healthiest? • Is there a pattern in where the plants are growing in the school grounds?	**Year 3:** • Does a surface that a marble rolls on affect the way the marble rolls? • How do shadows change when we change the distance between the object and the light source? **Year 4:** • How does the temperature affect how quickly the clothes dry? • Do carnivores have different teeth to herbivores? • Which instruments produce high pitched sounds and which ones produce low pitched sounds? • How can we change the pitch of sounds? • Which circuits cause the buzzer to sound or the bulb to light?	**Year 5:** • Does the height that a marble is dropped from into flour affect the size of the crater created? • Does the size of the glass placed over a burning candle affect the time for the flame to go out? • Does the shape of an object affect water resistance? **Year 6** • Does the distance of a light source affect the size of the shadow? • What happens to the light when the angle of the beam is changed? • Is there a relationship between the size of the mammal and the gestation period? • Does the brightness of a lamp vary, depending on the number of lamps used?
Identifying, grouping, and classifying	**Year 1:** • How can we sort the leaves that we have brought to school? • How can we sort the materials? • Which materials are flexible and which are rigid? • What are the names for all the parts of our bodies? • What are the names for the parts of the bodies for different animals? • Which African animals have wings? **Year 2:** • Which materials are strong/light/waterproof/flexible? • How can we group these animals from the rainforest?	**Year 3:** • How can you compare and group these rocks? • Which rocks are hard? • What are the names of the bones in the human skeleton? • Which surfaces reflect the light? • Which materials are opaque and which are transparent? • Which materials are magnetic or not? **Year 4:** • Can you group the materials into solids, liquids and gases? • What are the names for all the organs involved in the digestive system? • What are the names for the parts of the ear?	**Year 5:** • Can you observe and identify all the phases of the moon? • Can you group these substances, based on whether they are soluble or insoluble in water? • Can you group these substances, based on whether you can separate them from a liquid or not? • Can you group the materials in a Carroll diagram, according to their properties? • Can you group the plants according to whether they are pollinated by the wind or by insects? **Year 6:** • Which objects are luminous and non luminous? • Which materials are transparent, translucent and opaque?

		• How can we group these electrical devices, based on where the electricity comes from? • Can we use Venn diagrams and Carroll diagrams to group living things? • Can we use classification keys to identify different animals?	• What colours do you get if you mix different colours of light together? • Can you classify these observations into evidence for the idea of evolution, and evidence against? • Which finches live on each island? • Can you classify vertebrates into 5 groups? • Can you classify invertebrates into 5 groups? • Can you use branching keys to identify living things? • How would you make a key to identify an animal or a plant? • Which materials are insulators and which are conductors?
Comparative / Fair testing	**Year 1:** • Which materials are the most waterproof? **Year 2**: • Do the seeds grow better in the fridge or the cupboard? • Do the seeds grow better with water or without?	**Year 3:** • Which substrate enables the plant to grow best? **Year 4:** • What is the best temperature for melting chocolate? • How does the temperature affect how quickly the clothes dry? • Which material does sound travel through best? • How is the volume of the sound affected by the distance from the sound? • Which material is the best conductor of electricity?	**Year 5:** • On which surface is it most difficult to pull the object? **Year 6** • How quickly can you recover after exercise?
Researching	**Year 1:** • Do all animals have the same senses as humans? • Which African animals only eat plants? **Year 2:** • What is my animal's diet? • What does my rainforest animal look like? • What habitat does my animal live in? • What dangers does my animal face?	**Year 3:** • What are the functions of the bones in the human skeleton? • Which animals are herbivores, carnivores and omnivores? • What is a healthy balanced diet for humans? • How do muscles work and help our movement? • Who was Mary Anning and what did she discover? • How is light reflected? **Year 4:** • What are the melting and freezing points of different materials? • Who was Alexander Graham-Bell and what did he discover? • How do we stay safe around electricity? • How can environments change and what effect does that have on living things?	**Year 5:** • Why is the Earth a spherical body and how have our ideas about this changed over time? • What is the scale of the solar system? • Who was Jane Goodall and what did she discover? • What are the differences between the life cycle of an insect and an amphibian? **Year 6** • What evidence did Charles Darwin collect about evolution? • What adaptations has the whale had to help drive its evolution?

“Working Scientifically” Progression Overview

	Planning	Doing	Recording	Concluding	Evaluating
Reception	Explore and ask simple questions	Use a variety of equipment safely to explore.	Begin to collect information through drawings or discussions	Share what they notice in simple terms	Recognise and talk about patterns
Year 1	Ask simple questions and discuss ideas	Use simple equipment safely to make observations.	Record observations through drawings and simple charts	Begin to explain what they have found out	Notice patterns and make simple predictions
Year 2	Ask questions and plan simple tests	Safely follow instructions using basic equipment, making observations	Record findings with drawings, tables, and simple bar charts	Suggest answers based on evidence	Begin to make predictions and recognise patterns
Year 3	Raise relevant questions and set up simple tests	More independently, safely follow instructions using equipment, making careful observations	Record findings systematically using diagrams, charts, and tables	Draw conclusions and communicate them clearly	Look for patterns and begin to predict based on findings
Year 4	Ask relevant questions and consider fair testing	Independently, safely follow instructions using various equipment, taking measurements.	Record data using more complex charts and bar graphs	Use evidence to explain results and suggest improvements	Identify patterns and make informed predictions
Year 5	Plan fair tests, considering variables	Follow instructions using a wider range of equipment, taking accurate measurements.	Record data systematically using graphs, tables, and keys	Report findings with clear explanations	Identify trends, use evidence for predictions. Evaluate methods and suggest improvements
Year 6	Plan and conduct fair tests, identifying variables and controls	Follow more complex instructions, taking precise and repeated measurements	Present data clearly in tables, line graphs, and other forms	Report and present conclusions with evidence using appropriate scientific vocabulary	Seek patterns, identify relationships, and make future predictions. Evaluate methods and suggest improvements

National Curriculum

	Biology	Chemistry	Physics
Topics	Animals, including humans Plants Living things and their habitats Evolution and inheritance	Everyday materials Rocks States of matter	Seasonal changes Light Forces and magnets Sound; Electricity Earth and space

Key Terms

Substantive Knowledge (what children KNOW)

Substantive knowledge encompasses the subject content and vocabulary children use to understand and engage with science.

- Children encounter key scientific concepts repeatedly in meaningful contexts as they progress through the school.
- This approach helps children link and build on prior knowledge, making it easier to understand new material.
- Concepts are grouped systematically to help teachers identify connections across units and deepen understanding.

Disciplinary Knowledge (what children DO)

Disciplinary knowledge focuses on how children apply their understanding and develop as scientists. It involves knowing how to conduct scientific investigations, use equipment, and interpret evidence. Skills are developed across five key areas:

- **Planning:** Asking questions, conducting fair tests, and setting up investigations.
- **Doing:** Using equipment safely, and making systematic and accurate observations.
- **Recording:** Gathering evidence, classifying, and presenting findings in varied formats (e.g., diagrams, keys, charts, tables).
- **Concluding:** Suggesting answers, reporting, and presenting findings both orally and in writing.
- **Evaluating:** Identifying patterns, making predictions, and applying findings to future inquiries.

Fingertip Knowledge

Fingertip knowledge includes the essential facts and vocabulary that children need to master during a specific topic or lesson.

- This knowledge is crucial for constructing scientific understanding and making sense of new concepts.
- It is reinforced through retrieval activities, such as 'Do Now' tasks and low-stakes quizzes, to ensure it is well-organised and easily accessible in pupils' minds.
- By securing fingertip knowledge, children can confidently build on their learning and tackle increasingly complex scientific ideas.

Medium Term Plans

EYFS	
Driver Units	
Linked ELG	**Understanding the World** Science in the EYFS Framework falls predominantly under the Understanding the World area of learning. In addition, aspects within Communication and Language are important to the teaching and learning of Science. The Characteristics of Effective Teaching and Learning are threaded through all aspects of learning and are the fundamental ways in which children within EYFS learn. During the Early Years, children should be developing knowledge, skills and understanding which will prepare them for the Year 1 curriculum. **The Natural World** • Explore the natural world around them, making observations and drawing pictures of animals and plants. • Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. • Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter
Examples of Science in an Enabling Environment	**SAND** • Exploring movement, force, speed and direction • Investigating, predicting, testing and solving problems • Exploring materials - what can sand do and how does it move? • Exploring changes in materials and textures by adding water etc to sand • Beginning to understand cause and effect • Exploring the properties of dry and wet sand – compare; looking at similarities, differences, patterns in dry and wet sand **WATER** • Exploring movement, force, speed and direction • Investigating, predicting, testing and solving problems • Exploring materials - what can water do and how does it move? • Investigating how things work and why they happen and how objects behave in water e.g. dropping stones in water, playing with water wheels, flow of water, floating, sinking • Using their senses to investigate water **BLOCKS AND CONSTRUCTION** • Experimenting with different outcomes, exploring the consequences of cause and effect • Comparing different types of materials and their properties • Asking questions about how things work and why • Building for a variety of purposes e.g make a truck that will carry some animals, a chair for teddy **SMALL WORLD** • Exploring materials from the natural and man-made world e.g. making a miniature garden • Talking about and recording their observations e.g. drawing a picture of their model farm, airport, zoo, home • Developing scientific skills including predicting, observing, sorting **DOUGH** • Exploring materials and talking about their properties • Exploring movement and force • Investigating, predicting, testing and solving problems • Beginning to understand cause and effect • Observing and talking about changes **ART AND WORKSHOP** • Exploring the properties of different materials e.g paints, oil pastels, charcoal, inks, crayons, pencils, felt pens, papers, malleable materials etc • Using their senses to explore texture and sounds • Looking at similarities, differences, patterns and change e.g. when using different materials • Exploring and recognising features of living things e.g. observational • drawings of plants • Finding out how things work and why e.g. which glue is strongest? **WOODWORK** • Exploring materials and talking about their properties • Exploring movement and force • Investigating, predicting, testing and solving problems • Beginning to understand cause and effect **OUTDOOR LEARNING** • Exploring and observing changes in nature including the weather and the seasons • Exploring and noticing cause and effect e.g. what happens when I jump in a deep puddle compared to a shallow puddle? • Showing interest in and finding out about living things • Exploring movement, force, speed and direction • Investigating, predicting, testing and solving problems • Exploring materials and changes in materials e.g. in the mud kitchen

Year Group	Unit Title & Key Question	Linked Learning	National Curriculum (Substantive Knowledge)	Key Disciplinary Knowledge Working Like a Scientist	Medium Term Plan (Building Blocks / Component Parts)	Key Vocabulary	Enrichment
1	**My School** What is growing in my school?	Children have previously started to identify **plants** and their parts in **Year R** through their forest school sessions and their topic: The Deep Dark Wood **Science Weather objectives being taught throughout year 1** Seasonal and daily weather patterns, and how these affect plants and trees	**Plants** • 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.	• **Planning**: Asking questions, fair testing, setting up simple tests • **Doing**: Using different equipment safely, making systematic and careful observations • **Recording**: Obtaining evidence, classifying and identifying, recording findings in a variety of ways (e.g. drawings, labelled diagrams, keys, bar charts, graphs and tables) • **Concluding**: Suggesting answers, reporting, presenting (in oral and written forms) • **Evaluating**: Seeking patterns, making predictions for the future	**What is growing in my school?** 1. **WALT**: name common plants and trees (what is growing on our school grounds?) 2. **WALT**: name common plants and trees (planting workshop) 3. **WALT**: ask questions about plants which we could investigate 4. **WALT**: make observations and name parts of a plant 5. **WALT**: make observations and discuss them 6. **WALT** name common plants and make observations of them **Ongoing Continuous Provision** 1. **Seeds**: Sorting trays for organising different types; measuring and comparing weight/length (e.g., investigating tree leaf sizes). 2. **Observation**: Magnifying glasses for close examination; tree and plant identification charts. 3. **Creative Activities**: ○ Bark and leaf rubbings with crayons. ○ Collages or crowns using seeds and leaves. ○ Observational drawings of plants and flowers. ○ Tissue paper flower models. ○ Flap-style "Growing Pictures." ○ Vegetable and leaf printing. 4. **Games**: ○ Flower and plant recognition bingo. ○ Flower pairs matching game.	**Tier 1:** plant, seed, stem, leaf, root, flower, petal, bulb, tree, trunk, branch, living, dead, healthy **Tier 2:** observe, identify, words and phrases for making comparisons (e.g., tall/taller/tallest, like, similar to, different from) **Tier 3**: names of common wild and garden plants, including deciduous and evergreen trees; words and phrases relating to living and non-living things (e.g., living, non-living, alive, not alive)	**Cooking - children to cook a vegetable stir fry with plants harvested from school garden**

1	To run throughout the year **How does the weather change through the year?**	Children have previously started to identify **weather and seasons** in **Year R** through their forest school sessions and their topic: The Deep Dark Wood **Plant objectives being taught in year 1 term 1** Seasonal and daily weather patterns, and how these affect plants and trees	**Weather and Seasons** • identify and name observe changes across the four seasons • observe and describe weather associated with the seasons and how day length varies	• **Planning**: Asking questions, fair testing, setting up simple tests • **Doing**: Using different equipment safely, making systematic and careful observations • **Recording**: Obtaining evidence, classifying and identifying, recording findings in a variety of ways (e.g. drawings, labelled diagrams, keys, bar charts, graphs and tables) • **Concluding**: Suggesting answers, reporting, presenting (in oral and written forms) • **Evaluating**: Seeking patterns, making predictions for the future	**How does the weather change throughout the year?** 1. **WALT**: notice changes across the four seasons. 2. **WALT:** observe and describe weather associated with the season. 3. **WALT:** observe and describe how day length varies across the year. **Ongoing Continuous Provision** ○ children to bring in nature items of interest e.g. conkers, pinecones, spring flowers - available for children to do observational drawings ○ leaf prints/rubbings ○ weather map with different symbols to apply ○ weather BINGO game ○ autumn/winter/spring wreaths ○ dress the teddy/child game ○ pack the right clothes for the season game ○ making windmills ○ making rain gauge ○ making rainbow spinner	**Tier 1:** weather, season, spring, summer, autumn, winter, hot, cold, cloudy, windy, rainy, snowy, foggy, stormy, change, warmer, colder, dark, light **Tier 2:** temperature, compare, length, time, measure, record, observe, thermometer, diary, symbols **Tier 3**: daylight, sunrise, sunset, climate, rain gauge, weather vane	**Forest school - children to focus on their experience of weather and seasons, as part of forest school sessions**
1	**Balloon Voyage** What are hot air balloons made of and why?	**Science Weather objectives being taught throughout year 1** Seasonal and daily	**Materials** • distinguish between an object and the material from which it is made • identify and name a variety of everyday materials, including	• **Planning**: Asking questions, fair testing, setting up simple tests • **Doing**: Using different equipment safely, making systematic and careful observations	**What are hot air balloons made out of and why?** 1. **WALT:** understand the difference between the object and the material. 2. **WALT:** describe properties of materials. 3. **WALT:** sort materials. 4. **WALT:** test materials. 5. **WALT:** carry out a test (choosing our own question).	**Tier 1:** hot air balloon, basket **Tier 2:** object, material, property, test, prediction, air, heat, cool, change	**Mad Science hot air balloon demonstration** **visitor from Cameron Balloons**

		weather patterns, and how these affect flight of hot air balloon	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.	• **Recording**: Obtaining evidence, classifying and identifying, recording findings in a variety of ways (e.g. drawings, labelled diagrams, keys, bar charts, graphs and tables) • **Concluding**: Suggesting answers, reporting, presenting (in oral and written forms) • **Evaluating**: Seeking patterns, making predictions for the future	6. **WALT:** carry out a test (investigating waterproof materials). 7. **WALT:** use our knowledge to design our own hot air balloon. **Ongoing Continuous Provision** • Topic-related books (both fiction and non-fiction) • Water tray with containers to fill and ice cubes • Treasure baskets for sorting materials • Collage materials for creative activities • Feely bags and materials for tactile exploration • Magnets for investigations • Clay for modelling and testing materials • Sand tray for sieving wet and dry sand • Bowls of different substances (e.g., flour, sugar, lentils, peas) for sorting and testing • Playdough, junk modelling, and plasticine for hands-on activities	**Tier 3**: natural, manufactured, wood, metal, plastic, glass, wool, cotton, nylon, wicker, leather, shiny, rough, smooth, hard, soft, flexible, rigid, heavy, light, absorbent, magnetic, waterproof	
1	**On Safari** What animals live in Africa?	**Science Animals** Children previously learnt to identify animals in **Year R** through their forest school sessions and their topic: The Deep Dark	**Animals, including humans** • 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 • Describe and compare the structure of a	• **Planning**: Asking questions, fair testing, setting up simple tests • **Doing**: Using different equipment safely, making systematic and careful observations • **Recording**: Obtaining evidence, classifying and identifying, recording findings in a variety of ways (e.g. drawings, labelled diagrams, keys, bar	**What animals live in Africa?** 1. **WALT**: Name, draw and label the parts of the human body. 2. **WALT**: Say which part of the body is associated with each sense. 3. **WALT**: Name body parts of different African animals. 4. **WALT**: Investigate which African animals have wings. 5. **WALT**: Investigate which African animals only eat plants.	**Tier 1:** names of the main body parts (including head, neck, arms, elbows, legs, knees, face, ears, eyes, hair, mouth, teeth) senses - sight, hearing, touch, taste, smell **Tier 2:** common names of some fish, amphibians, reptiles, birds and mammals, including	**Visitor: Kwame from 'African Activities'**

		Wood. They also visited aquarium in **Year 1 term 5**	variety of common animals • identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense	charts, graphs and tables) • **Concluding**: Suggesting answers, reporting, presenting (in oral and written forms) • **Evaluating**: Seeking patterns, making predictions for the future		those that are kept as pets. **Tier 3:** tentacle, sucker, whisker, barbel, pincer, carnivore, herbivore, omnivore, beak, antennae, exoskeleton, camouflage, habitat, adaptation, nocturnal, diurnal, biodiversity, ecosystem, predator, prey	
2	**Fire! Fire!** How can we build a fire engine?	**Science Materials** In Year 1 children learnt to name and identify everyday materials, investigate their properties and group and compare them	**Materials** • 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	• **Planning**: Asking questions, fair testing, setting up simple tests • **Doing**: Using different equipment safely, making systematic and careful observations • **Recording**: Obtaining evidence, classifying and identifying, recording findings in a variety of ways (e.g. drawings, labelled diagrams, keys, bar charts, graphs and tables) • **Concluding**: Suggesting answers, reporting, presenting (in oral and written forms) • **Evaluating**: Seeking patterns, making predictions for the future	**How can we build a fire engine?** 1. **WALT:** Visit from the fire service 2. **WALT:** Introduce brief (research existing products) 3. **WALT**: Identify and compare the suitability of materials (Explore and compare everyday materials for fire engine parts – which are strong, light, waterproof, flexible?) 4. **WALT:** Research how to make the product (explore materials, parts, joining methods, and attaching wheels) 5. **WALT**: Find out how materials can be changed by squashing, bending, twisting, and stretching (Investigate how solid materials behave when manipulated and what this means for product design) 6. **WALT:** Design the product in partners (Draw and explain how the fire engine will be made, justifying material and mechanism choices) 7. **WALT:** Make the product (build a fire engine using designs and research) 8. **WALT:** Make the product (build a fire engine using designs and research) 9. **WALT:** Make the product (build a fire engine using designs and research)	**Tier 1:** fire engine, build, make, design, test, evaluate, house, burn, fire, wood, group, partner, playground, watch, draw, wheel, share **Tier 2**: investigate, research, materials, product, attach, join, explain, feedback, task, features, method, questions, technology, parts **Tier 3:** 1666, The Great Fire of London, Tudor, reenactment, structure, vehicle, fire service, design brief, evaluation, axle	**Local fire service visit to school**

					10. **WALT:** Test the product (share with nursery/reception classes and gather feedback) 11. **WALT:** Understand how houses were built in 1666 London (explore house features, technology, and reasoning) 12. **WALT:** Make the houses (build houses in small groups) 13. **WALT:** Watch the houses burn in a reenactment of The Great Fire of London 14. **WALT:** Write a recount (recount the house building and burning task)		
2	**Amazon Adventure** How do animals and plants survive and depend on each other in the Amazon Rainforest?	**Science** Children previously learned about **plants** and **animals** in year 1 Children will explore plants further in Year 2 in **Terrific Trees** in term 6	**Living things and their habitats** • 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. • 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.	• **Planning**: Asking questions, fair testing, setting up simple tests • **Doing**: Using different equipment safely, making systematic and careful observations • **Recording**: Obtaining evidence, classifying and identifying, recording findings in a variety of ways (e.g. drawings, labelled diagrams, keys, bar charts, graphs and tables) • **Concluding**: Suggesting answers, reporting, presenting (in oral and written forms) • **Evaluating**: Seeking patterns, making	**How do animals and plants survive and depend on each other in the Amazon Rainforest?** 1. **WALT:** Explain how animals are adapted to survive in different habitats. 2. **WALT:** Classify animals. 3. **WALT:** Classify animals as herbivores, carnivores, or omnivores. 4. **WALT:** Understand food chains. 5. **WALT:** Discover our research animal. 6. **WALT:** Research and gain an understanding of the appearance of our specific animal. 7. **WALT:** Research and gain an understanding of the diet of our specific animal. 8. **WALT:** Understand the life cycle of animals and how they develop. 9. **WALT:** Understand what animals need for survival. 10. **WALT:** Replicate a food chain using their chosen animal. 11. **WALT:** Draw and label an animal scientifically.	**Tier 2:** habitat, rainforest, woodland, ocean, desert, polar regions, climate, humid, equator, vegetation, biodiversity, environment, ecosystem, deforestation, sustainability **Tier 3:** Amazon River, South America, Brazil, canopy, emergent layer, understory, forest floor, indigenous, conservation, precipitation, tropics, latitude, deforestation	**Trip to Noah's Ark Zoo Farm with Rainforest Explorer workshop**

			• Explore and compare the differences between things that are living, dead and things that have never been alive **Animals, including humans** • notice that animals, including humans, have offspring which grow into adults • find out about and describe the basic needs of animals, including humans, for survival (water, food and air) • describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene (This objective is covered in ***PSHE Jigsaw Term 4 planning, 'Healthy Me.')***	predictions for the future			
2	**From Bean to Bar**	**Builds on work done in PSHE lessons in term 4.** **Children will revisit in year 3**	• Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.		**Not a science driver topic but this objective to be covered here and in PE/PSHE - then revisited in year 3**		
2	**Terrific Trees** How do trees contribute	**Science** Children previously learned about **plants** in year 1 and	**Plants** • observe and describe how seeds and bulbs grow into mature plants • find out and describe how plants need water, light and a suitable	• **Planning**: Asking questions, fair testing, setting up simple tests • **Doing**: Using different equipment safely,	**How do trees contribute to our lives?** 1. **WALT**: Identify parts of a common tree 2. **WALT**: Understand what trees are and why they are important	**Tier 1:** soil water sun growth plants roots stem seed fruit leaves branch trunk	**Local park and school grounds (trees and microhabitats for**

	to our lives?	in Year 2 unit on the rainforest	temperature to grow and stay healthy. **Living things and their habitats** • 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. • Explore and compare the differences between things that are living, dead and things that have never been alive	making systematic and careful observations • **Recording**: Obtaining evidence, classifying and identifying, recording findings in a variety of ways (e.g. drawings, labelled diagrams, keys, bar charts, graphs and tables) • **Concluding**: Suggesting answers, reporting, presenting (in oral and written forms) • **Evaluating**: Seeking patterns, making predictions for the future	3. **WALT**: Identify different seeds and learn the stages of seed germination 4. **WALT**: Learn how bulbs mature into plants and how they differ from seeds 5. WALT: Understand that plants need water, light and a suitable temperature to grow 6. **WALT**: Understand the differences between an evergreen and a deciduous tree 7. **WALT**: Understand the roles of trees in our environment 8. **WALT**: Understand and explain the life cycle of a tree 9. **WALT**: Describe a microhabitat 10. **WALT**: Explain what food and other products come from trees 11. **WALT**: Understand why it is important to protect trees and how to do this 12. **WALT**: Gather and record data 13. **WALT**: Compare different trees around the world 14. **WALT**: Compare different leaf patterns and sort them into what tree they are 15. **WALT**: Gather and record data 16. WALT: Understand changes throughout the seasons 17. **WALT**: Observe and classify what season the trees are in 18. **WALT**: Show our knowledge of the changes in trees throughout the seasons 19. **WALT**: Explain the differences between seasons 20. **WALT**: Gather and record (Final check of cress and discuss progress and evaluate)	petals tree bark flower grow **Tier 2:** germination bulb evergreen deciduous lifecycle **Tier 3:** names of plants and trees microhabitat conservation oxygen prediction classification	**observations)** **Tree surgeon (parent)**

3	**Savage Stone Age** What are rocks made from and used for?	Dinosaur topic in EYFS Children have previously learnt about materials in Year 1(identities and properties) and Y2 materials (tests and uses)	**Rocks** • 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.	• **Planning**: Asking questions, fair testing, setting up simple tests • **Doing**: Using different equipment safely, making systematic and careful observations • **Recording**: Obtaining evidence, classifying and identifying, recording findings in a variety of ways (e.g. drawings, labelled diagrams, keys, bar charts, graphs and tables) • **Concluding**: Suggesting answers, reporting, presenting (in oral and written forms) • **Evaluating**: Seeking patterns, making predictions for the future	**What are rocks made from and used for?** 1. **WALT:** ask questions about rocks to extend our knowledge 2. **WALT: r**ecognise, describe and compare different rocks 3. **WALT:** plan, compare and group different kinds of rocks by investigating their hardness. 4. **WALT:** understand how the 3 main rocks are formed. 5. **WALT:** recognise what soil is made from. 6. **WALT:** explain what soil is made from. 7. **WALT:** understand and explain how fossils are made. 8. **WALT:** explore the importance of Mary Anning's work as a fossil hunter.	**Tier 1:** rock, soil, chalk, sand, rough, smooth, fossil, moss, clay **Tier 2:** compare, describe, group, investigate, observe, permeable, absorbent, appearance, hardness, weathering, erosion, mineral, loamy soil, sandy soil, peat soil, slate **Tier 3:** sedimentary, granite, marble, Mohs' scale of hardness, Mary Anning, fossilisation, permeability, natural forces, sediment, Bristol Diamonds, geology	**Stone Age Workshop**
3	**Brilliant Light** How does light help us in our everyday life?	Children will further investigate light in Y6 - Bristol Street Art	**Light** • 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	• **Planning**: Asking questions, fair testing, setting up simple tests • **Doing**: Using different equipment safely, making systematic and careful observations • **Recording**: Obtaining evidence, classifying and identifying, recording findings in a variety of ways (e.g. drawings, labelled diagrams, keys, bar	**How does light help us in our everyday life?** 1. **WALT**: recognise that we need light in order to see things and that dark is the absence of light. 2. **WALT**: observe how light is reflected from surfaces; record observations in a table. 3. **WALT**: identify opaque, translucent, and transparent materials. 4. **WALT**: understand that the sun can produce harmful rays. Part 1 5. **WALT:** understand that the sun can produce harmful rays. Part 2	**Tier 2**: light, shadow, direction, block, compare, because, higher, shorter, different, same **Tier 3**: transparent, translucent, opaque, shadow, light source, reflection, beam, reflection, sunlight, UV	**Bedminster lantern parade**

			• 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	charts, graphs and tables) • **Concluding**: Suggesting answers, reporting, presenting (in oral and written forms) • **Evaluating**: Seeking patterns, making predictions for the future	6. **WALT**: recognise how shadows are formed and can change. Part 1. 7. **WALT**: recognise how shadows are formed and can change. Part 2.		
3	**To the ends of the Earth** How do forces and magnets affect the ways things move?	**Science** Children have previously looked at properties of materials in Year 1 and Year 2 Children will investigate water cycles in Year 4 Children will further explore forces in Year 6	**Forces and Magnets** • 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 poles are facing.	• **Planning**: Asking questions, fair testing, setting up simple tests • **Doing**: Using different equipment safely, making systematic and careful observations • **Recording**: Obtaining evidence, classifying and identifying, recording findings in a variety of ways (e.g. drawings, labelled diagrams, keys, bar charts, graphs and tables) • **Concluding**: Suggesting answers, reporting, presenting (in oral and written forms) • **Evaluating**: Seeking patterns, making predictions for the future	**How do forces and magnets affect the way things move?** 1. **WALT:** Identify and label push and pull forces. 2. **WALT:** Understand that some forces need contact between two objects. 3. **WALT:** Use fair tests to understand how friction affects movement on different surfaces. 4. **WALT:** Predict and test which materials are magnetic. 5. **WALT:** Describe how magnets attract and repel each other. 6. **WALT:** Set up a fair test and conduct a test. 7. **WALT:** Record findings and discuss results.	**Tier 1:** push, pull,surface, force, speed, grip, slippery **Tier 2:** resistance, magnetic, friction, attract, repel, pole, North Pole, South Pole, contact force, non-contact force, motion, surface, direction, resistance, balance, movement, position. **Tier 3:** investigation, variable, fair test, observe, measure, record, results, conclusion, prediction, hypothesis, force meter, gravity, air resistance, mass, newton.	**Visitor: Liz Bagshaw talk - polar scientist (and previous yr3 parent)**

3	**Healthy me** *How do our bones, muscles, and food choices help us live, move, and grow?*	In **Year 1** children learned to identify parts of the human body and in **year 2** children learnt what animals including humans need to survive, and about the importance of healthy choices.	**Animals, including humans** • 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.	• **Planning**: Asking questions, fair testing, setting up simple tests • **Doing**: Using different equipment safely, making systematic and careful observations • **Recording**: Obtaining evidence, classifying and identifying, recording findings in a variety of ways (e.g. drawings, labelled diagrams, keys, bar charts, graphs and tables) • **Concluding**: Suggesting answers, reporting, presenting (in oral and written forms) • **Evaluating**: Seeking patterns, making predictions for the future	***How do our bones, muscles, and food choices help us live, move, and grow?*** 1. **WALT:** Recognise the bones in the human skeleton. 2. **WALT:** Understand the functions of a skeleton. 3. **WALT:** Understand how muscles work and help us move. 4. **WALT:** Describe the importance for humans of exercise. 5. **WALT:** Identify that animals also need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat. 6. **WALT:** Understand what a healthy, balanced diet is. 7. **WALT:** Demonstrate what I have learned in science this year.	**Tier 2**: energy, healthy, unhealthy, balanced, hydrated, exercise, evaluate, safe, hygiene, movement, function, important, stretch **Tier 3:** calories, kilojoules, protein, carbohydrate, vitamins, minerals, sugar, saturated fat, fibre, water, dairy, calcium, skeleton, muscles, ligaments, tendons, diabetes, omnivore, herbivore, carnivore, nutrition	**Visitor: Physiotherapist visit/talk- Henry Abrahams**
3	**Oh, grow up!**	In **Year 1 and 2** children focus on naming parts of plants, making simple observations and descriptions, and comparing basic	**Plants** • 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	• **Planning**: Asking questions, fair testing, setting up simple tests • **Doing**: Using different equipment safely, making systematic and careful observations • **Recording**: Obtaining evidence, classifying and identifying, recording findings in a variety of ways (e.g. drawings, labelled diagrams, keys, bar	**What helps a plant grow, survive and make seeds?** 1. **WALT**: Understand the function of different parts of a plant. 2. **WALT**: Understand the part flowers play in the life cycle of a plant (e.g., pollination). 3. **WALT**: Notice how the patterns/structures of fruits relate to seed dispersal. 4. **WALT**: Explore the requirements of plants for life and growth by investigating what substrate plants need to grow well. 5. **WALT**: Plan an investigation (into plant growth).	**Tier 1**: roots, stem, leaves, flower, water, light, air, soil, temperature, seed **Tier 2**: pollination, fertilisation, life cycle, reproduction, nutrient, environment, seed dispersal, transportation, observation, prediction, fair test, variable,	**Parent with a local allotments visited classes to explain how plants grow from seeds, supporting our work on plant life cycles and growth. — Hanna Jury (2025-6)**

		features, while Year 3 moves on to explaining functions, investigating growth, understanding processes	• 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.	charts, graphs and tables) • **Concluding**: Suggesting answers, reporting, presenting (in oral and written forms) • **Evaluating**: Seeking patterns, making predictions for the future	6. **WALT**: Investigate the way in which water is transported within plants. 7. **WALT**: Explain the roles of the female and male parts of a flower. 8. **WALT**: Compare the fertilisation process of flowers with humans. 9. **WALT**: Make and record observations. 10. **WALT**: Describe the pollination and fertilisation process of a flower. 11. **WALT**: Use observations to draw scientific conclusions about plant growth and water transport.	investigation, diagram, evidence, conclusion **Tier 3**: petal, sepal, stamen, stigma, anther, ovaries, filament, ovule, carpel	
4	**Splash!** How do materials change between solids, liquids and gases, and how does this affect the world around us?	Builds on work in **Y1** materials (identities and properties) **Y2** materials (tests and uses) **Y3** rocks	**States of 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.	• **Planning**: Asking questions, fair testing, setting up simple tests • **Doing**: Using different equipment safely, making systematic and careful observations • **Recording**: Obtaining evidence, classifying and identifying, recording findings in a variety of ways (e.g. drawings, labelled diagrams, keys, bar charts, graphs and tables) • **Concluding**: Suggesting answers, reporting, presenting (in oral and written forms) • **Evaluating**: Seeking patterns, making predictions for the future	**How do materials change between solids, liquids and gases, and how does this affect the world around us?** 1. **WALT:** discuss and show our understanding of water and states of matter; raise questions that can be investigated and researched. 2. **WALT:** investigate, raise questions about, and explain solids, liquids, and gases. 3. **WALT:** use particle theory to explain why matter exists in three states – solid, liquid, and gas. 4. **WALT:** investigate the melting and freezing temperature of materials. 5. **WALT:** explain that some materials change state when they are heated or cooled; use the scientific vocabulary (i.e., freezing, evaporation, and condensation) to do this. 6. **WALT:** identify the part played by evaporation and condensation in the water cycle. 7. **WALT:** make observations and draw conclusions from our investigative work; make connections with our scientific knowledge and understanding of the water cycle. 8. **WALT:** associate the rate of evaporation with temperature by conducting a comparative investigation (e.g., drying clothes).	**Tier 1:** Heat, Cool, Dry, Weight **Tier 2:** Temperature, Water cycle, Classify, Energy, Distribution, Natural resources, Thermometer **Tier 3:** States of matter, Degrees Celsius (°C), Vapour, Evaporation, Condensation, Precipitation, Transpiration, Run-off, Particles, Solid, Liquid, Gas	

					9. **WALT:** plan and conduct an investigation into evaporation and condensation in the water cycle (e.g., water cycle in a bag). 10. **WALT:** create diagrams of the water cycle to assist oral explanation. 11. **WALT:** review and refine predictions based on evidence from investigative work. 12. **WALT:** understand how changes in state (e.g., evaporation) can be observed and recorded over time. 13. **WALT:** apply knowledge of evaporation to explain real-life scenarios (e.g., puddles disappearing or drying clothes). 14. **WALT:** summarize and explain key scientific ideas about states of matter and the water cycle. 15. **WALT:** reflect on and assess our learning through written and verbal explanations.		
4	**Awesome Ancient Egyptians** How does the human digestive system work, and what do a variety of creatures eat?	In KS1 children were introduced to body parts + simple food understanding.	**Animals, including humans** ● 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.	• **Planning**: Asking questions, fair testing, setting up simple tests • **Doing**: Using different equipment safely, making systematic and careful observations • **Recording**: Obtaining evidence, classifying and identifying, recording findings in a variety of ways (e.g. drawings, labelled diagrams, keys, bar charts, graphs and tables) • **Concluding**: Suggesting answers, reporting, presenting (in oral and written forms) • **Evaluating**: Seeking patterns, making	**How does the human digestive system work, and what do a variety of creatures eat?** 1. **WALT**: Identify, name and describe parts of the human digestive system. 2. **WALT**: Identify parts of the digestive system. 3. **WALT**: Describe the simple functions of the basic parts of the digestive system in humans. 4. **WALT**: Identify the different types of teeth in humans and their simple functions. 5. **WALT**: Identify differences, similarities or changes related to simple scientific ideas and processes by comparing human and animal teeth. 6. **WALT**: Construct food chains for different habitats and explain findings using the correct scientific language.	**Tier 1:** mouth, tongue, herbivore, carnivore, omnivore **Tier 2:** digest, digestion, predator, prey, producer, consumer, food chain, identify, function, explain **Tier 3:** digestive system, oesophagus, stomach, duodenum, small intestine, large intestine, pancreas, liver, rectum, anus, salivary glands, gallbladder, canine, molar, premolar, incisors, wisdom teeth	**Bristol Museum Egyptian Workshop**

				predictions for the future			
4	**Listen up!** What exactly is sound? How is it created, how does it travel and how is it heard?	In KS1 children were introduced to very basic ideas about sound through phonics and music lessons (e.g. noticing different sounds, identifying sources of sound, and observing how sound changes) This is the first and only time that children learn about sound in a scientific context.	**Sound** • 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	• **Planning**: Asking questions, fair testing, setting up simple tests • **Doing**: Using different equipment safely, making systematic and careful observations • **Recording**: Obtaining evidence, classifying and identifying, recording findings in a variety of ways (e.g. drawings, labelled diagrams, keys, bar charts, graphs and tables) • **Concluding**: Suggesting answers, reporting, presenting (in oral and written forms) • **Evaluating**: Seeking patterns, making predictions for the future	**What exactly is sound? How is it created, how does it travel and how is it heard?** 1. **WALT:** explain what we already know about sound and evaluate our ideas together. 2. **WALT:** make careful observations and draw conclusions. 3. **WALT:** explain how sounds are made when objects/materials vibrate. 4. **WALT:** make predictions and careful observations; demonstrate that sounds are made when objects or materials vibrate. 5. **WALT:** explain how vibrations from sound sources travel through different materials to the ear. 6. **WALT:** use simple scientific language and labelled diagrams to show our understanding. 7. **WALT:** explain how sounds travel as vibrations through a medium to the ear. 8. **WALT:** identify the parts of the ear and explain how they enable us to hear sounds. 9. **WALT:** explore how high and low sounds are created, and find patterns between the pitch of a sound and features of the object/instrument that produced it. 10. **WALT:** demonstrate that the pitch of a stringed instrument depends on the length, thickness, and tightness of the string. 11. **WALT:** explore how high and low sounds are created and find patterns between the pitch of a sound and features of the object/instrument that produced it. 12. **WALT:** make and then test a prediction; identify differences, similarities or changes related to simple scientific ideas. 13. **WALT:** investigate how the volume of a sound is affected by the distance from the sound source; gather and record data to answer a scientific question.	**Tier 2:**quiet, soft, loud, high, low, noise, sound, loudness, tension, tight, contrast, relationship, change, predict, increase, decrease **Tier 3:**pitch, loudness, vibration, muffle, tuning, frequency, amplitude, decibel, tension, oscillation, resonance, compression, rarefaction, soundwave, medium, auditory, eardrum, cochlea, auditory nerve, reverberation	**Local musician**

					14. **WALT:** describe the achievements of significant scientists and how their discoveries and accomplishments changed people's lives. (**Alexander Graham-Bell)** 15. **WALT:** revise key concepts from the unit and demonstrate understanding through assessment.		
4	**Hoo were the Anglo-saxons?** *How does electricity work and how is it used?*	Children may have informal knowledge of common electrical devices and basic uses of electricity, but this is the first time children learn about electricity at school, in a scientific context.	**Electricity** • 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	• **Planning**: Asking questions, fair testing, setting up simple tests • **Doing**: Using different equipment safely, making systematic and careful observations • **Recording**: Obtaining evidence, classifying and identifying, recording findings in a variety of ways (e.g. drawings, labelled diagrams, keys, bar charts, graphs and tables) • **Concluding**: Suggesting answers, reporting, presenting (in oral and written forms) • **Evaluating**: Seeking patterns, making predictions for the future	***How does electricity work and how is it used?*** 1. **WALT:** Identify common appliances that run on electricity. 2. **WALT:** Construct simple series circuits, identifying whether or not a lamp will light; make predictions and record findings in a table. 3. **WALT:** Construct simple circuits and use component symbols and circuit diagrams to represent them. 4. **WALT:** Recognise some common conductors and insulators, and associate metals with being good conductors. 5. **WALT:** Explain how switches can be used to make or break a circuit to turn things on or off; construct our own switches to solve 'real life' problems. 6. **WALT:** Use electricity safely, and communicate our understanding of its potential dangers by creating a public information poster or leaflet. 7. **WALT:** Demonstrate our knowledge and understanding of electricity through assessment activities.	**Tier 2:** current, appliances, circuit, conductor, insulator, safety, danger, precautions, power, component, experiment, materials, hypothesis, results, prediction, symbols, investigation, findings **Tier 3:** electrical circuit, battery, bulb, buzzer, motor, break, electrical conductor, electrical insulator, metal, plastic, mains, battery-powered, complete circuit, incomplete circuit, component symbols, series circuit, electrical components, investigation sheet, materials testing	
4	**Espana** *What is the relationship between living*	In **Year 2,** children learn to group simple features of living	**Living things and their habitats** • recognise that living things can be grouped in a variety of ways • explore and use classification keys to	• **Planning**: Asking questions, fair testing, setting up simple tests • **Doing**: Using different equipment safely,	***What is the relationship between living things and their habitats, how can changes pose dangers to them and what can we do about it?*** 1. **WALT**: Group living things in a range of ways. 2. **WALT**: Classify vertebrates; use classification keys.	**Tier 1:** positive, negative, key, climate, environment, impact **Tier 2:** suited, adapted, migrate,	

	things and their habitats, how can changes pose dangers to them and what can we do about it?	things and explore habitats at a basic level in their **Amazon Adventure** topic	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.	making systematic and careful observations • **Recording**: Obtaining evidence, classifying and identifying, recording findings in a variety of ways (e.g. drawings, labelled diagrams, keys, bar charts, graphs and tables) • **Concluding**: Suggesting answers, reporting, presenting (in oral and written forms) • **Evaluating**: Seeking patterns, making predictions for the future	3. **WALT**: Recognise that environments can change and show how this can sometimes pose dangers to living things (e.g., the Iberian Lynx). 4. **WALT**: Recognise that environments can change and show how this can sometimes pose dangers to living things (continued, focusing on the Iberian Lynx and conservation). 5. **WALT**: Recognise that environments can change and that this can sometimes pose dangers to living things. 6. **WALT**: Use classification keys to help group, identify and name a variety of living things in their local and wider environment (Spain/Andalucia). 7. **WALT**: Use classification keys to help group, identify and name a variety of living things in their local and wider environment; use scientific evidence to explain identification of invertebrates. 8 & 9. WALT: Use classification keys to help group, identify and name a variety of living things; use scientific evidence to explain identification of invertebrates (continued, including invertebrate hunt and identification). 8. **WALT**: Create and use a classification key to name a variety of living things in the wider environment (e.g., different species of bees)	hibernate, nutrition, reproduction, characteristics **Tier 3:** habitat, organism, species, classification, vertebrate, invertebrate, mammal, reptile, excretion, Venn diagram, Carroll diagram	
5	**Out of this World** Where's our place in the universe?	Year 5 builds on earlier work on forces, covering basic pushes and pulls in **year 3 (to the ends of the earth)** In year 5, more complex scientific	**Earth and Space** • 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	• **Planning**: Asking questions, fair testing, setting up simple tests • **Doing**: Using different equipment safely, making systematic and careful observations • **Recording**: Obtaining evidence, classifying and identifying, recording findings in a variety of ways (e.g.	**Where's our place in the universe?** 1. **WALT:** Describe the movement of the Earth relative to the sun and its location within the universe. *(Flipbook activity)* 2. **WALT:** Think about what we already know and what we would like to find out about space. *(Topic book share and fact recording)* 3. **WALT:** Identify the sun as a star and explain its benefits. *(Poster creation)* 4. **WALT:** Understand the scale of our solar system. *(Toilet roll demonstration)*	**Tier 1:** space, Earth, Moon, star, planet, day, night, seasons, distance, rotating, axis, gravity, sun, light, heat, energy, year **Tier 2**: orbit, friction, air resistance, fair test, weight, surface area, force, weight, solar system, galaxy,	**Explorer Dome**

		ideas are introduced: exploring gravity, air resistance, planetary movement and mechanisms, using fair testing and scientific modelling to explain phenomena in space and forces.	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 **Forces** • 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* **(taught in Term 5: Vikings)** and friction, that act between moving surfaces	drawings, labelled diagrams, keys, bar charts, graphs and tables) • **Concluding**: Suggesting answers, reporting, presenting (in oral and written forms) • **Evaluating**: Seeking patterns, making predictions for the future	5. **WALT:** Use forces vocabulary correctly. *(Interactive sorting and carousel activities)* 6. **WALT:** Understand why the sun, Earth, and the Moon are spherical bodies. *(Diagrams and Aristotle's evidence discussion)* 7. **WALT:** Explain what the moon is. *(Elicitation and fact-sharing activity)* 8. **WALT:** Describe the phases of the moon. *(Labelling and visual spinner creation)* 9. **WALT:** Identify the effects of friction acting between moving surfaces. *(Demonstration and activities with a force meter)* 10. **WALT:** Identify the effects of friction acting between moving surfaces. *(Testing and results analysis)* 11. **WALT:** Describe the Earth's rotation on its axis and its impact on day, night, and the seasons. *(Diagram and globe demonstration)* 12. **WALT:** Explain the significance of the moon landing. *(Neil Armstrong lesson and fact discussion)* 13. **WALT:** Learn about the work of scientists. *(Reading comprehension and inference questions)* 14. **WALT:** Learn about the work of scientists. *(Creating a certificate or medal)* 15. **WALT:** Learn about the work of scientists. *(Lonnie Johnson lesson)* 16. **WALT:** Identify the effect of air resistance on falling objects. *(Demonstration with footballs, paper, and discussion)* 17. **WALT:** Identify the effect of air resistance on falling objects. *(Investigation with stopwatches and recording)* 18. **WALT:** Investigate the impact of weight on air resistance. *(Adding weights to parachutes)* 19. **WALT:** Investigate the impact of weight on air resistance. *(Conclusion of parachute investigation)*	Milky Way, rotate, sphere, evidence, reflect, satellite, eclipse, atmosphere **Tier 3:** Mercury, Venus, Mars, Jupiter, Saturn, Uranus, Neptune, Pluto, Sun, hydrogen, helium, gravity, solar system, Moon landing, Neil Armstrong, Apollo 11, lunar eclipse, Aristotle, space exploration, satellite, orbiting, parabolic flight, parachute	

					20. **WALT:** Consider the impact of air resistance on slowing the rate of falling objects. *(Recap and teaching on parachutes)* 21. **WALT:** Consider the impact of air resistance on slowing the rate of falling objects. *(Parachute creation and testing)* 22. **WALT:** Consider the impact of air resistance on slowing the rate of falling objects. *(Amendments to parachutes and mean calculation)* 23. **WALT:** Consider the impact of air resistance on slowing the rate of falling objects. *(Investigation conclusion and questions)* 24. **WALT:** Demonstrate an understanding of key concepts about space. *(Presentation of learning)*		
5	**Greatest Greeks** What is the science behind the changes we see?	Year 5 builds on earlier learning about materials and states of matter (e.g. simple solids/liquids/gases in **Year 3 (Savage Stone Age) and Year 4 (Splash)** and basic change of materials in **Year 1 (Balloon Voyage) and Year 2 (Fire Fire!)** deepening understanding through investigation of	**Properties and changes of Materials** • 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,	• **Planning**: Asking questions, fair testing, setting up simple tests • **Doing**: Using different equipment safely, making systematic and careful observations • **Recording**: Obtaining evidence, classifying and identifying, recording findings in a variety of ways (e.g. drawings, labelled diagrams, keys, bar charts, graphs and tables) • **Concluding**: Suggesting answers, reporting, presenting (in oral and written forms) • **Evaluating**: Seeking patterns, making	**What is the science behind the changes we see?** 1. **WALT:** recap the changes of state. 2. **WALT:** know that some materials will dissolve in liquid to form a solution. 3. **WALT:** use knowledge of solids, liquids and gases to decide how mixtures and solutions might be separated. 4. **WALT:** explain that some changes form new materials, and that these changes are not usually reversible. 5. **WALT:** identify when a change caused by heating or cooling is reversible or irreversible. 6. **WALT:** investigate the materials needed for something to burn and the new materials formed by burning. 7. **WALT:** compare and group together everyday materials on the basis of their properties. 8. **WALT:** give reasons for the particular uses of everyday materials in relation to their properties. 9. **WALT:** apply knowledge of materials and their properties to solve a real-world problem (The Clean Water Challenge).	**Tier 2**: dissolve, mixture, filter, reversible, irreversible, reaction, separate, heating, cooling, solution, investigate, predict, absorbent, flexible, conductive, impermeable, translucent **Tier 3**: soluble, insoluble, solute, solvent, evaporation, condensation, filtration, sieving, burning, state of matter, chemical reaction, crystallisation, precipitation, combustion, distillation	

		properties, reversible/irreversible changes and scientific testing	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	predictions for the future			
5	**The vikings are coming**	This adds to the learning earlier in **Year 5 in Out of this World**	**Forces** • identify the effects of air resistance, *water resistance* and friction, that act between moving surfaces		**Not a science driver topic but this objective to be covered here through DT**		
5	**Life on Earth** How does life	Year 5 builds on earlier learning about living things and simple life	**Living things and their habitats:** • Describe the differences in the life cycles of a mammal, an	• **Planning**: Asking questions, fair testing, setting up simple tests • **Doing**: Using different equipment safely,	**How does life continue on Earth?** 1. **WALT**: know how we classify animals 2. **WALT**: describe how plants reproduce 3. **WALT**: describe how plants reproduce.	**Tier 1:** human, animal, material, mix, melting, burning **Tier 2**: lifecycle, life stage, filter, solution,	**Visitors: Kate (Young Climate Warriors)**

	continue on Earth?	cycles in **Year 2 (Amazon Adventure) and Year 3 (Healthy Me/Oh, grow up!)** by deepening understanding of classification, reproduction and life cycles — moving from identifying features to comparing, explaining processes and recognising patterns across different organisms.	amphibian, an insect and a bird. • Describe the life process of reproduction in some plants and animals including mammals and humans. **Animals, including humans:** • Describe the changes as humans develop to old age.	making systematic and careful observations • **Recording**: Obtaining evidence, classifying and identifying, recording findings in a variety of ways (e.g. drawings, labelled diagrams, keys, bar charts, graphs and tables) • **Concluding**: Suggesting answers, reporting, presenting (in oral and written forms) • **Evaluating**: Seeking patterns, making predictions for the future	4. **WALT**: compare asexual and sexual reproduction 5. **WALT**: compare asexual and sexual reproduction 6. **WALT**: describe the lifecycle of different mammals 7. **WALT**: describe the lifecycle of different mammals 8. **WALT**: compare the life cycles of amphibians and insects 9. **WALT**: compare the life cycles of amphibians and insects. 10. life cycles of a mammal, an amphibian, an insect and a bird by describing and comparing different life cycles, including birds. 11. **WALT**: describe what Jane Goodall discovered about chimpanzees.	dissolving, evaporation **Tier 3**: reversible changes, irreversible changes, sexual reproduction, asexual reproduction, mammal, reptile, amphibian, insect, flowering plant	**Dr Schmitt (parent) climate talk**
6	**Bristol Street Art** How do we use light to see?	This unit builds on prior learning in **Year 3 (Brilliant light)** moving from simple observations to scientific explanation and building deeper	**Light** • 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	• **Planning**: Asking questions, fair testing, setting up simple tests • **Doing**: Using different equipment safely, making systematic and careful observations • **Recording**: Obtaining evidence, classifying and identifying, recording findings in a variety of ways (e.g. drawings, labelled diagrams, keys, bar charts, graphs and tables)	**How do we use light to see?** 1. **WALT:** recognise how we require light to see objects (science). 2. **WALT:** investigate why some surfaces reflect light better than others. 3. **WALT:** investigate how shadows are created. 4. **WALT:** investigate how the distance of a light source can alter the size of a shadow. 5. **WALT:** investigate how the distance of a light source can alter the size of a shadow. 6. **WALT:** represent my scientific data in a line graph. 7. **WALT:** investigate what happens when light hits a mirror. 8. **WALT:** use our understanding of light and mirrors to build a periscope.	**Tier 2**: Recognise, Investigate, Reflect, Surface, Record, Measure, Diagram, Explain, Data, Construct, Demonstrate, Combine, Block, Effect **Tier 3:** Luminous, Non-luminous, Transparent, Translucent, Opaque, Reflection, Refraction, Shadow, Periscope,	

		understanding of reflection, refraction, shadow formation and sight.	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	• **Concluding**: Suggesting answers, reporting, presenting (in oral and written forms) • **Evaluating**: Seeking patterns, making predictions for the future	9. **WALT:** use our understanding of light and mirrors to build a periscope 10. **WALT:** explain how white light is made up of a spectrum of different colours. 11. **WALT:** (double lesson combined with L10). 12. **Science Topic assessment.**	Spectrum, Line Graph, Light Source, Observation, Angle of Reflection, Angle of Incidence, White Light	
6	**My, how you've changed** How can adaptation lead to evolution of plants and animals? How do we classify living things?	This learning builds on prior classification work covered in all earlier year groups. The children progress from identifying and classifying living things to explaining variation, natural selection and evolution using evidence	**Evolution and inheritance** • 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 their environment in different ways and that adaptation may lead to evolution **Living things and their habitats** • describe how living things are classified into broad groups according to common observable characteristics and based on similarities	• **Planning**: Asking questions, fair testing, setting up simple tests • **Doing**: Using different equipment safely, making systematic and careful observations • **Recording**: Obtaining evidence, classifying and identifying, recording findings in a variety of ways (e.g. drawings, labelled diagrams, keys, bar charts, graphs and tables) • **Concluding**: Suggesting answers, reporting, presenting (in oral and written forms) • **Evaluating**: Seeking patterns, making predictions for the future	**How can adaptation lead to evolution of plants and animals? How do we classify living things?** **Scientist: Charles Darwin** **Evolution** 1. **WALT:** consider the theory of evolution as a means to explain how organisms have changed over time. 2. **WALT:** decide whether evidence supports Darwin's theory of evolution. 3. **WALT:** review our knowledge of fossils and describe how they are formed. 4. **WALT:** explain the evolution of the Whale. 5. **WALT:** use scientific evidence to support the theory of natural selection. 6. **WALT:** use your knowledge of adaptation to explore the future evolution of humans. 7. **WALT:** investigate variation and characteristics in living organisms. **Living things and their habitats** 8. **WALT:** explain why we classify living things. 9. **WALT:** classify animals with a backbone (vertebrates). 10. **WALT:** classify animals without a backbone (invertebrates). 11. **WALT:** recognise how plants are classified. 12. **WALT:** use keys to identify living things. 13. **WALT:** Design an evolution-themed board game.	**Tier 2:** changes, exercise, lifestyle, diet, nutrients, water, health, energy, function, process, organs, support, protection, interaction, balance, teamwork **Tier 3:** circulatory system, heart, blood, blood vessels, pumps, oxygen, carbon dioxide, veins, capillaries, oxygenated, de-oxygenated, pulse, ventricle, atrium, arteries, aorta, respiratory system, lungs, respiration, digestive system, oesophagus, stomach, large intestine, small intestine, drugs, nervous system, brain, spinal cord, immune system, lymph nodes	**Bristol dinosaur project**

			and differences, including micro-organisms, plants and animals • give reasons for classifying plants and animals based on specific characteristics				
6	**Me, Myself and I** What are the different bodily systems and how do they work together?	This learning builds on prior learning about animals and body systems in all earlier year groups by deepening understanding of the circulatory, respiratory and digestive systems and exploring how these systems interact — alongside RSE learning about puberty, reproduction and personal health.	**Animals, including humans** • identify and name the main parts of the human circulatory system, and explain the functions of the heart, blood vessels and blood (including the pulse and clotting). • 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	• **Planning**: Asking questions, fair testing, setting up simple tests • **Doing**: Using different equipment safely, making systematic and careful observations • **Recording**: Obtaining evidence, classifying and identifying, recording findings in a variety of ways (e.g. drawings, labelled diagrams, keys, bar charts, graphs and tables) • **Concluding**: Suggesting answers, reporting, presenting (in oral and written forms) • **Evaluating**: Seeking patterns, making predictions for the future	**What are the different bodily systems and how do they work together?** 1. **WALT:** explain the functions of different parts of the circulatory system. 2. **WALT:** recognise the connection between the respiratory and the circulatory systems. 3. **WALT:** describe the functions of blood. 4. **WALT:** measure our recovery rate following exercise. 5. **WALT**: Write a formal scientific method. 6. **WALT**: represent experimental data on a bar chart **7.** **WALT**: write a discussion to explain the results obtained in a scientific experiment. 8. **WALT**: describe how nutrients and water are transported in the digestive system. **RSE Objectives:** 1. **WALT**: recognise the different types of relationships and what makes them work. 2. **WALT**: recognise the physical and emotional changes that take place during puberty. 3. **WALT**: understand how important personal hygiene is and how to achieve it. 4. **WALT**: describe the role of the menstrual cycle). 5. **WALT**: understand the process of fertilisation). 6. **WALT**: recognise how a foetus develops. 7. **WALT**: understand what sanitary products are available to use during menstruation.	**Tier 2:** changes, exercise, lifestyle, diet, nutrients, water, health, energy, function, process, organs, support, protection, interaction, balance, teamwork **Tier 3:** circulatory system, heart, blood, blood vessels, pumps, oxygen, carbon dioxide, veins, capillaries, oxygenated, de-oxygenated, pulse, ventricle, atrium, arteries, aorta, respiratory system, lungs, respiration, digestive system, oesophagus, stomach, large intestine, small intestine, drugs, nervous system, brain, spinal cord, immune system, lymph nodes	**Lifeskills visit**

6	**Legacy and Identity: Exploring Bristol's forgotten history** How can we design and build an electric-motorised vehicle?	This learning builds on earlier learning on simple circuits introduced in Year 4 (Hoo were the Anglo-saxons?) The children progress by deepening understanding of circuits and applying scientific knowledge to a practical design challenge — designing and building an electric-motorised vehicle using circuits, testing variables and applying fair testing.	**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 electrical circuit in a diagram (including cells, wires, bulbs, switches and buzzers)	• **Planning**: Asking questions, fair testing, setting up simple tests • **Doing**: Using different equipment safely, making systematic and careful observations • **Recording**: Obtaining evidence, classifying and identifying, recording findings in a variety of ways (e.g. drawings, labelled diagrams, keys, bar charts, graphs and tables) • **Concluding**: Suggesting answers, reporting, presenting (in oral and written forms) • **Evaluating**: Seeking patterns, making predictions for the future	**How can we design and build an electric-motorised vehicle?** 1. **WALT:** investigate how the brightness of a lamp varies depending on the number of lamps used 2. **WALT:** construct circuit diagrams of electrical circuits 3. **WALT:** investigate the electrical conductive properties of certain materials 4. **WALT:** construct a series circuit 5. **WALT:** use our knowledge of circuits to test a hypothesis then DT objectives to design and build electric motorised vehicle.	**Tier 2**: Circuit, lamp (bulb), motor, switch, buzzer, battery/cell, wire, flow, fair testing, appliance, health and safety, mains electricity, design, build, improve, evaluate **Tier 3**: voltage, amps, fuse, component, series circuit, resistance, variable resistor, circuit symbol, conductor, insulator	