

Year C Science Curriculum

Class structure: YR | Y1/2 | Y2/3 | Y4/5 | Y6

Purpose

This document brings together the Year C Science overview and end points for each class. The unit titles are drawn from the school Year C rolling programmes. Suggested learning and end points provide coherent progression through the mixed-age structure.

Year C whole-school overview

Class	Autumn	Spring	Summer
Y1/2	Living Things and Their Habitats How do living things survive in their habitats?	Light and Shadows How does light help us see the world around us? How are shadows formed and changed by light?	Seasonal Changes and Weather How does the weather change throughout the year, and how does it affect living things? How do seasonal changes affect plants, animals and people?
Y2/3	Living Things and Their Habitats How do living things survive in their habitats?	Light and Shadows How does light help us see the world around us? How are shadows formed and changed by light?	Seasonal Changes and Weather How does the weather change throughout the year, and how does it affect living things? How do seasonal changes affect plants, animals and people?
Y4/5	Properties and Materials How do the properties of materials affect how they are used? Why are some materials more suitable for certain purposes than others?	Electricity How does electricity work and how can we use it safely and effectively? How can we design and improve electrical circuits to solve real-world problems?	Living Things & Their habitats – Classification How do scientists classify living things? Why is classification important for understanding and identifying living things?

Class	Autumn	Spring	Summer
Y6	Properties and Materials How do the properties of materials affect how they are used? Why are some materials more suitable for certain purposes than others?	Electricity How does electricity work and how can we use it safely and effectively? How can we design and improve electrical circuits to solve real-world problems?	Living Things & Their habitats – Classification How do scientists classify living things? Why is classification important for understanding and identifying living things?

Class overview: Y1/2/3

Term	Unit	Key Learning and Substantive Knowledge	END POINTS AND KEY VOCABULARY		
Autumn	Living Things and Their Habitats How do living things survive in their habitats? How are animals and plants suited to the habitats in which they live?	Lesson 1: What is a living thing? Year 1 - Living things include animals and plants. - Living things grow and need food and water. Year 2 - Living things can grow, move and reproduce. - Some things are living, dead or never alive. Year 3 - Living things carry out life processes. - Plants and animals depend on their environment.	By the End of Year 1, pupils should be able to: - Identify living things, including plants and animals. - Know that living things need food, water and shelter. - Describe simple habitats and the organisms that live there.	By the End of Year 2, pupils should be able to: - Distinguish between living, dead and never-alive things. - Describe habitats and microhabitats. - Explain how plants and animals are suited to their habitats. - Construct simple food chains. - Explain why habitats are important for survival.	By the End of Year 3, pupils should be able to: - Explain how organisms depend on their habitats. - Describe adaptations that help survival. - Construct and explain food chains using scientific vocabulary. - Explain how environmental changes affect habitats. - Understand why habitats and biodiversity should be protected.
		Lesson 2: What do living things need to survive? Year 1 - Animals need food, water and shelter. - Plants need water and sunlight. Year 2 - Different living things have different needs. - Habitats provide the things living things need. Year 3 - Survival depends on meeting basic needs within a habitat. - Environmental conditions affect survival.	- Recognise that habitats help living things survive. - Identify simple feeding relationships.		
		Lesson 3: What is a habitat? Year 1 - A habitat is a place where a plant or animal lives. - Different habitats are home to different living things. Year 2 - Habitats provide food, shelter and water. - Habitats can be natural or human-made. Year 3 - Habitats contain both living and non-living elements. - Organisms are suited to conditions within habitats.	Key Vocabulary living, plant, animal, habitat, food, water, shelter, grow, survive, pond, woodland, minibeast.	Key Vocabulary living, dead, never alive, habitat, microhabitat, food chain, producer, consumer, environment, conditions, adaptation.	Key Vocabulary organism, adaptation, biodiversity, producer, consumer, predator, prey, ecosystem, species, population, conservation, dependence.
		Lesson 4: What lives in our local habitat? Year 1 - Local habitats contain different plants and animals. - We can observe living things carefully. Year 2 - Different organisms can be found in different parts of a habitat. - Observations help us identify living things. Year 3			

Term	Unit	Key Learning and Substantive Knowledge	END POINTS AND KEY VOCABULARY		
		- Scientific observations help us collect evidence about habitats. - Local habitats support a variety of species. Lesson 5: What is a microhabitat? Year 1 - Some animals live in very small places. - Logs and stones can provide homes for minibeasts. Year 2 - A microhabitat is a small habitat within a larger habitat. - Different microhabitats support different living things. Year 3 - Conditions in microhabitats affect which organisms can survive there. - Organisms are adapted to specific microhabitats. Lesson 6: How are animals suited to their habitats? Year 1 - Animals have different body parts. - These help them survive. Year 2 - Different animals are suited to different habitats. - Features help animals find food and stay safe. Year 3 - Adaptations increase chances of survival. - Habitats influence the features animals need. Lesson 7: How are plants suited to their habitats? Year 1 - Plants grow in different places. - Plants need light and water. Year 2 - Different plants grow best in different conditions. - Plant features help them survive. Year 3 - Plants are adapted to suit their environment. - Conditions affect plant growth and reproduction. Lesson 8: How do animals depend on plants? Year 1 - Many animals eat plants. - Plants provide food. Year 2 - Plants help support many living things. - Animals depend on plants for food and shelter. Year 3 - Plants are producers in food chains.			

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		- Most food chains begin with plants. Lesson 9: What is a food chain? Year 1 - Animals need food to survive. - Some animals eat plants and some eat animals. Year 2 - Food chains show who eats whom. - Living things depend on one another. Year 3 - Food chains include producers and consumers. - Energy passes through a food chain. Lesson 10: What happens when habitats change? Year 1 - Habitats can change. - Changes can affect plants and animals. Year 2 - Weather and people can change habitats. - Some living things may struggle to survive. Year 3 - Environmental changes impact populations. - Changes to one species can affect other organisms. Lesson 11: How can people protect habitats? Year 1 - People can care for nature. - Litter can harm habitats. Year 2 - Looking after habitats helps living things survive. - People can reduce damage to habitats. Year 3 - Conservation helps protect habitats and species. - Human actions can improve or damage ecosystems. Lesson 12: How do living things survive in their habitats? Year 1 - Living things need habitats to survive. - Different habitats support different living things. Year 2 - Animals and plants are suited to their habitats. - Food chains show how living things depend on each other. Year 3 - Habitats, adaptations and food chains are connected. - Survival depends on the relationship between organisms and their environment.			

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Spring	Light and Shadows How does light help us see the world around us? How are shadows formed and changed by light?	Lesson 1: What is light and where does it come from? Year 1 - Light comes from different sources, including the Sun and electric lights. - We need light to see things. Year 2 - Some objects make their own light and are called light sources. - Without light it is difficult to see. Year 3 - Light is a form of energy that travels from a light source. - Different light sources produce different amounts of light. Lesson 2: Why do we need light to see? Year 1 - We can only see objects when there is light. - Darkness is the absence of light. Year 2 - Light reflects from objects into our eyes. - We see objects because light reaches them. Year 3 - Light travels from a source and reflects off surfaces into our eyes. - Brightness can affect how clearly we see. Lesson 3: Which materials let light pass through? Year 1 - Some materials let light through and some block light. - Windows let light enter buildings. Year 2 - Materials can be transparent, translucent or opaque. - Different materials allow different amounts of light through. Year 3 - Transparent materials allow most light through, translucent materials allow some through and opaque materials block light. - Material properties affect how much light passes through. Lesson 4: How are shadows made? Year 1 - Shadows appear when light is blocked. - Shadows are dark shapes. Year 2 - A shadow forms when an object blocks light from a source. - Shadows show the outline of an object. Year 3	By the End of Year 1, pupils should be able to: - Identify common sources of light. - Explain that we need light to see. - Recognise that shadows are formed when light is blocked. - Observe and describe simple changes in shadows. - Talk about how to stay safe in sunlight. Vocabulary light, dark, Sun, shadow, source, torch, mirror, block, sunlight.	By the End of Year 2, pupils should be able to: - Identify and compare different light sources. - Explain how light helps us see objects. - Describe transparent, translucent and opaque materials. - Explain how shadows are formed and changed. - Use observations to answer simple scientific questions about light. Vocabulary light source, transparent, translucent, opaque, reflection, surface, artificial light, material, investigate.	By the End of Year 3, pupils should be able to: - Explain that light travels from a source and reflects from surfaces. - Describe how materials affect the movement of light. - Explain how shadows are formed and why they change size and direction. - Carry out simple investigations about light and shadow. - Use scientific vocabulary to explain observations and results. Vocabulary reflection, reflective, opaque, transparent, translucent, absorb, energy, fair test, observation, conclusion, predict.

Term	Unit	Key Learning and Substantive Knowledge	END POINTS AND KEY VOCABULARY		
		- Shadows are formed when opaque objects block light travelling in straight lines. - The position of the light source affects the shadow. Lesson 5: How can shadows change? Year 1 - Shadows can be big or small. - Shadows move when the light or object moves. Year 2 - The size and shape of a shadow can change. - Moving a light source changes the shadow produced. Year 3 - The distance between the light source, object and surface affects shadow size. - Scientific observations can be used to investigate changing shadows. Lesson 6: How do shadows change throughout the day? Year 1 - Shadows can be seen outdoors on sunny days. - Shadows move as the day goes on. Year 2 - The Sun causes shadows to change position during the day. - Shadows can be longer or shorter at different times. Year 3 - The apparent movement of the Sun changes the direction and length of shadows. - Patterns in shadow movement can be observed and recorded. Lesson 7: Which objects make the best shadows? Year 1 - Different objects make different shadows. - Some shadows are easier to see than others. Year 2 - Opaque objects produce clear shadows. - Transparent objects produce little or no shadow. Year 3 - The properties of materials affect the shadows they create. - Fair tests can be used to compare shadow formation. Lesson 8: How can mirrors change light? Year 1 - Mirrors reflect light. - Reflections can help us see objects. Year 2 - Light bounces off shiny surfaces such as mirrors.			

Term	Unit	Key Learning and Substantive Knowledge	END POINTS AND KEY VOCABULARY		
		- Mirrors are useful in everyday life. Year 3 - Reflection occurs when light bounces off a surface. - Mirrors can change the direction of light. Lesson 9: How can we investigate light and shadows? Year 1 - We can observe light and shadows carefully. - We can talk about what we notice. Year 2 - We can ask questions and carry out simple tests. - Observations help us learn about light. Year 3 - Scientific investigations help explain how light and shadows behave. - Results can be recorded and used to draw conclusions. Lesson 10: How is light useful in everyday life? Year 1 - Light helps us do everyday activities. - People use lights at home and at school. Year 2 - Different jobs and activities rely on light. - Artificial light can help when natural light is unavailable. Year 3 - Light is important for safety, communication and daily living. - Humans use light in many different technologies. Lesson 11: How can we stay safe in sunlight? Year 1 - The Sun gives us light. - We should protect ourselves from strong sunlight. Year 2 - Too much sunlight can harm our skin and eyes. - Hats, sunscreen and shade help keep us safe. Year 3 - Sunlight can be beneficial but excessive exposure can be harmful. - Scientists and health professionals advise sun-safe behaviours. Lesson 12: How are shadows formed and changed by light? Year 1 - Light helps us see and makes shadows. - Shadows change when light changes. Year 2 - Light and shadow are connected.			

Term	Unit	Key Learning and Substantive Knowledge	END POINTS AND KEY VOCABULARY		
		- Different materials and light sources affect shadows. Year 3 - Light travels from sources, reflects from surfaces and creates shadows when blocked. - Scientific understanding of light explains how shadows form and change.			
Summer	Seasonal Changes and Weather How does the weather change throughout the year, and how does it affect living things? How do seasonal changes affect plants, animals and people?	Lesson 1: What is weather? Year 1 - Weather describes what it is like outside each day. - Weather can be sunny, rainy, windy, cloudy or snowy. Year 2 - Weather changes from day to day. - Different types of weather can be observed and recorded. Year 3 - Weather patterns can be measured and compared over time. - Weather conditions affect how people live and work. Lesson 2: What are the four seasons? Year 1 - The four seasons are spring, summer, autumn and winter. - Seasons happen in the same order every year. Year 2 - Each season has different weather and features. - Changes can be observed across the year. Year 3 - Seasonal patterns occur because of the Earth's yearly cycle. - Weather varies during different seasons. Lesson 3: How does the weather change through the seasons? Year 1 - Different seasons have different weather. - Summer is usually warmer and winter is usually colder. Year 2 - Rainfall, sunlight and temperature vary between seasons. - Seasonal weather affects daily life. Year 3 - Scientists observe and record weather patterns to identify changes. - Seasonal weather influences environments and living things. Lesson 4: How do plants change through the seasons? Year 1 - Plants grow and change throughout the year. - Some trees lose their leaves in autumn.	By the End of Year 1, pupils should be able to: - Name the four seasons in the correct order. - Describe typical weather for each season. - Identify seasonal changes in plants, animals and daily life. - Explain that daylight changes across the year. - Make simple observations about weather patterns. Vocabulary weather, season, spring, summer, autumn, winter, sunny, rainy, windy, cloudy, daylight, Sun.	By the End of Year 2, pupils should be able to: - Compare the weather across the four seasons. - Explain how seasonal changes affect plants, animals and people. - Record simple weather observations and identify patterns. - Describe how daylight changes throughout the year. - Explain how living things respond to seasonal change. Vocabulary temperature, forecast, observe, record, rainfall, habitat, pattern, seasonal, change, survive.	By the End of Year 3, pupils should be able to: - Explain how weather and seasonal changes affect living things and habitats. - Describe how plants and animals adapt to seasonal conditions. - Record, interpret and discuss simple weather data. - Explain how seasonal cycles influence human activity. - Use scientific vocabulary to explain observed seasonal patterns. Vocabulary climate, data, evidence, adaptation, migration, hibernation, conditions, seasonal cycle, biodiversity, prediction, investigate.

Term	Unit	Key Learning and Substantive Knowledge	END POINTS AND KEY VOCABULARY		
		Year 2 • Different plants respond differently to seasonal change. • Spring and summer often provide better growing conditions. Year 3 • Plant growth depends on factors such as light, temperature and water. • Seasonal changes affect flowering, seed production and growth. Lesson 5: How do animals change through the seasons? Year 1 • Animals behave differently during different seasons. • Some animals find shelter during colder weather. Year 2 • Animals adapt their behaviour to survive seasonal changes. • Food availability changes throughout the year. Year 3 • Seasonal changes affect animal habitats, behaviour and survival. • Migration, hibernation and food gathering help some animals survive. Lesson 6: How do people change their activities through the seasons? Year 1 • People wear different clothes in different seasons. • Activities often change depending on the weather. Year 2 • Weather influences transport, sports and outdoor activities. • People adapt to seasonal changes. Year 3 • Seasonal weather affects jobs, farming and leisure activities. • Humans adapt their behaviour to environmental conditions. Lesson 7: How does daylight change across the year? Year 1 • Days are longer in summer and shorter in winter. • It gets dark earlier in winter. Year 2 • The amount of daylight changes during the year. • Seasonal daylight affects daily routines. Year 3 • Patterns in daylight can be observed and recorded. • Changes in daylight are linked to seasonal cycles. Lesson 8: How can we measure the weather? Year 1 • We can observe weather using our senses. • We can talk about what we see.			

Term	Unit	Key Learning and Substantive Knowledge	END POINTS AND KEY VOCABULARY		
		Year 2 - Weather can be recorded using simple charts. - Observations help us compare weather over time. Year 3 - Scientists use equipment and data to measure weather. - Recording results helps identify trends and patterns. Lesson 9: How does weather affect habitats? Year 1 - Different weather affects plants and animals. - Habitats change throughout the year. Year 2 - Seasonal changes affect food, water and shelter. - Living things respond to changes in their habitat. Year 3 - Weather influences the conditions within habitats. - Seasonal changes can affect survival and growth. Lesson 10: Why is the Sun important? Year 1 - The Sun gives us light and warmth. - The Sun is important for life on Earth. Year 2 - Plants need sunlight to grow. - The Sun affects weather and seasons. Year 3 - The Sun provides energy that drives many natural processes. - Sunlight influences temperature, growth and seasonal patterns. Lesson 11: How can we stay safe in different weather? Year 1 - Different weather requires different clothing. - We should stay safe in hot, cold or stormy weather. Year 2 - Weather can sometimes be dangerous. - People can prepare for different weather conditions. Year 3 - Understanding weather helps people make safe choices. - Communities respond to weather conditions in different ways. Lesson 12: How do seasonal changes affect plants, animals and people? Year 1 - Seasons bring changes to weather, plants and animals. - People notice these changes throughout the year.			

Term	Unit	Key Learning and Substantive Knowledge	END POINTS AND KEY VOCABULARY		
		Year 2 - Seasonal changes affect living things in different ways. - Weather influences plants, animals and human activities. Year 3 - Seasonal cycles connect weather, habitats and living things. - Observing seasonal change helps scientists understand the natural world.			

Class overview: Y4/5/6

Term	Unit	Key Learning and Substantive Knowledge	END POINTS AND KEY VOCABULARY		
Autumn	Properties and Materials How do the properties of materials affect how they are used? Why are some materials more suitable for certain purposes than others?	Lesson 1: What are materials and how can we describe them? Year 4 - Objects are made from different materials. - Materials have different properties that can be observed and described. Year 5 - Materials can be grouped according to their properties. - Properties help us compare and classify materials. Year 6 - Scientists classify materials based on observable and measurable properties. - Materials are selected for specific uses because of their characteristics.	By the End of Year 4, pupils should be able to: - Identify and describe the properties of common materials. - Compare materials using simple tests. - Explain why materials are used for particular purposes. - Identify waterproof, absorbent, hard and strong materials. - Recognise that some materials can change shape.	By the End of Year 5, pupils should be able to: - Compare and group materials according to their properties. - Explain how material properties influence their uses. - Describe reversible and irreversible changes. - Carry out fair tests and record results accurately. - Use evidence to explain why a material is suitable for a purpose.	By the End of Year 6, pupils should be able to: - Explain how scientific testing informs material selection. - Describe and compare key material properties. - Distinguish between physical and chemical changes. - Evaluate the suitability of materials for different uses. - Use scientific vocabulary and evidence to justify conclusions.
		Lesson 2: Which materials are best for different jobs? Year 4 - Different materials are used for different purposes. - Some materials are better suited to particular jobs. Year 5 - The properties of a material influence its suitability. - Materials are chosen because they meet specific requirements. Year 6 - Engineers and designers select materials based on a range of physical properties. - Material choice often involves balancing advantages and disadvantages.	Vocabulary material, property, hard, soft, strong, weak, waterproof, absorbent, flexible, rigid, transparent, opaque.	Vocabulary conductor, insulator, durability, suitability, thermal, electrical, reversible, irreversible, classify, evidence, fair test.	Vocabulary conductivity, thermal conductivity, electrical conductivity, chemical change, physical change, reaction, elasticity, evaluate, investigation, data, efficiency.
		Lesson 3: How can we compare hardness and strength? Year 4 - Some materials are harder than others. - Some materials are stronger and less likely to break. Year 5 - Hardness and strength can be tested and compared. - Different materials perform differently under force. Year 6 - Scientific investigations can measure and compare material strength. - Hardness and strength affect the suitability of materials for construction and manufacture.			
		Lesson 4: Which materials are waterproof and absorbent? Year 4 - Some materials absorb water while others repel it. - Waterproof materials keep water out. Year 5 - Materials have different levels of absorbency. - Tests can be used to compare how materials interact with water. Year 6			

Term	Unit	Key Learning and Substantive Knowledge	END POINTS AND KEY VOCABULARY		
		- Material structure affects absorbency and waterproofing. - Scientific evidence can be used to select appropriate materials for different purposes. Lesson 5: How do materials conduct heat? Year 4 - Some materials feel warmer or colder than others. - Different materials transfer heat differently. Year 5 - Materials can be compared as heat conductors or insulators. - Insulating materials help reduce heat transfer. Year 6 - Thermal conductivity explains why some materials are better insulators. - Material choice affects energy efficiency in homes and products. Lesson 6: How do materials conduct electricity? Year 4 - Some materials allow electricity to pass through them. - Others stop electricity from flowing. Year 5 - Conductors and insulators have different uses. - Electrical safety often depends on insulating materials. Year 6 - Electrical conductivity determines how materials are used in circuits. - Scientific understanding informs safe design and technology. Lesson 7: Can materials be changed? Year 4 - Some materials can be bent, stretched or squashed. - Materials may change shape in different ways. Year 5 - Materials can undergo reversible changes. - Some changes allow materials to be reused. Year 6 - Changes to materials can affect their properties and uses. - Scientists distinguish between physical and chemical changes. Lesson 8: Which changes are reversible? Year 4 - Some changes can be undone. - Examples include bending and melting. Year 5 - Heating and cooling can cause reversible changes. - Materials can often return to their original state.			

Term	Unit	Key Learning and Substantive Knowledge	END POINTS AND KEY VOCABULARY		
		Year 6 - Reversible changes do not create new substances. - Observations and evidence help identify reversible changes. Lesson 9: Which changes are irreversible? Year 4 - Some materials change permanently. - Burnt or cooked materials often cannot return to their original form. Year 5 - Irreversible changes create materials with different properties. - Heating can sometimes cause permanent change. Year 6 - Irreversible changes often involve chemical reactions. - New substances can be produced during these changes. Lesson 10: How do scientists test materials? Year 4 - Scientists use tests to compare materials. - Results help answer scientific questions. Year 5 - Fair tests help scientists collect reliable evidence. - Measurements can be used to compare materials. Year 6 - Scientific enquiries allow materials to be evaluated objectively. - Conclusions should be based on evidence and data. Lesson 11: How are materials used in real life? Year 4 - Everyday objects are designed using suitable materials. - Materials affect how objects work. Year 5 - Different jobs rely on specific material properties. - Materials are chosen to meet particular needs. Year 6 - Advances in material science influence technology and engineering. - New materials can solve practical problems. Lesson 12: Why are some materials more suitable than others? Year 4 - Different materials have different properties. - These properties make them useful for different purposes. Year 5 - Material properties determine how they are used. - Scientific testing helps identify suitable materials.			

Term	Unit	Key Learning and Substantive Knowledge	END POINTS AND KEY VOCABULARY		
		Year 6 - Material selection depends on a range of physical properties and evidence. - Understanding material properties helps solve real-world problems.			
Spring	Electricity How does electricity work and how can we use it safely and effectively? How can we design and improve electrical circuits to solve real-world problems?	Lesson 1: How does a simple electrical circuit work? Year 4 - A complete circuit allows electricity to flow and power components. - Circuits are made from cells, wires, bulbs, buzzers and switches. Year 5 - Electricity flows around a complete circuit. - Components have different functions within a circuit. Year 6 - Electrical energy is transferred through a complete series circuit. - Variations in circuit construction affect how components function. Lesson 2: How can electrical circuits be represented? Year 4 - Circuits can be drawn using pictures and simple diagrams. - Scientists use agreed symbols to represent components. Year 5 - Circuit symbols make diagrams easier to understand. - Different components have their own recognised symbol. Year 6 - Circuit diagrams use internationally recognised symbols. - Scientific diagrams allow circuits to be communicated accurately. Lesson 3: How do cells and batteries make electricity? Year 4 - Cells provide power to a circuit. - More than one cell can be connected together. Year 5 - Batteries store energy that can be transferred electrically. - Different batteries provide different amounts of power. Year 6 - Voltage describes the electrical push provided by a cell or battery. - Variations in voltage affect how electrical components function. Lesson 4: How does adding more components affect a circuit? Year 4 - Adding components can change how a circuit works. - Bulbs may become dimmer when more are added. Year 5 - Additional components share the electrical energy available.	By the End of Year 4, pupils should be able to: - Construct and identify simple electrical circuits. - Recognise the purpose of common circuit components. - Explain that a complete circuit is needed for electricity to flow. - Identify conductors and insulators. - Describe simple electrical safety rules. Vocabulary electricity, circuit, complete circuit, cell, battery, wire, bulb, buzzer, switch, motor, conductor, insulator.	By the End of Year 5, pupils should be able to: - Explain how components function within a circuit. - Use recognised circuit symbols. - Carry out fair tests involving electrical circuits. - Explain the effect of adding components to a circuit. - Record and present findings using tables and graphs. Vocabulary circuit diagram, circuit symbol, series circuit, component, current, electrical energy, variable, data, graph, investigation.	By the End of Year 6, pupils should be able to: - Explain how voltage affects the brightness of bulbs and volume of buzzers. - Draw accurate circuit diagrams using recognised symbols. - Investigate and explain variations in circuit performance. - Analyse data from electrical investigations and draw conclusions. - Design, build and evaluate an electrical product for a specific purpose. Vocabulary voltage, volts, resistance, current, electron, electrical transfer, reliability, evidence, conclusion, accuracy, control variable, evaluate.

Term	Unit	Key Learning and Substantive Knowledge	END POINTS AND KEY VOCABULARY		
		- Circuit performance changes as resistance increases. Year 6 - The brightness of a bulb is affected by the number of components and cells in a circuit. - Scientific investigations can identify patterns between circuit structure and performance. Lesson 5: How does voltage affect bulbs and buzzers? Year 4 - More batteries can make bulbs brighter or buzzers louder. - Electricity can have different effects. Year 5 - Increasing the number of cells changes the energy transferred in a circuit. - Voltage influences the output of components. Year 6 - Brightness and volume are linked to the number and voltage of cells used. - Evidence from investigations can be used to explain circuit behaviour. Lesson 6: Which materials conduct electricity? Year 4 - Some materials allow electricity to pass through them. - Other materials stop electricity flowing. Year 5 - Conductors and insulators have different uses. - Materials can be tested to determine their properties. Year 6 - Conductive and insulating materials are selected for specific purposes in electrical products. - Scientific testing helps determine material suitability. Lesson 7: How do switches control electrical circuits? Year 4 - Switches can turn circuits on and off. - A switch can break or complete a circuit. Year 5 - A working switch controls the flow of electricity. - Different switches are used for different purposes. Year 6 - Switches create and break complete circuits. - Electrical control systems rely on switches to function safely. Lesson 8: How can we investigate electrical questions? Year 4 - Scientists ask questions and use tests to find answers.			

Term	Unit	Key Learning and Substantive Knowledge	END POINTS AND KEY VOCABULARY		
		- Results can be recorded in tables. Year 5 - Fair tests help scientists compare results. - Repeat measurements improve reliability. Year 6 - Scientific investigations require careful control of variables. - Data can be analysed to identify patterns and relationships. Lesson 9: How can data help us understand electricity? Year 4 - Results can be organised and compared. - Patterns can be identified from observations. Year 5 - Data can be displayed in tables and graphs. - Graphs help scientists explain findings. Year 6 - Line graphs and measurements can be used to identify trends. - Conclusions should be supported by evidence from data. Lesson 10: What are the dangers of electricity? Year 4 - Electricity can be dangerous if used incorrectly. - Electrical safety rules help keep people safe. Year 5 - Faulty equipment and unsafe behaviour can cause harm. - Electrical hazards can often be prevented. Year 6 - Risk assessments help identify electrical hazards. - Understanding electrical safety supports responsible use of technology. Lesson 11: How can electricity solve problems? Year 4 - Electrical circuits can be used to make everyday devices work. - Different components have different purposes. Year 5 - Designers use electrical circuits to solve practical problems. - Electrical devices can be adapted for specific uses. Year 6 - Scientific knowledge can be applied to design effective electrical systems. - Electrical solutions often require testing, modification and evaluation. Lesson 12: How can we design and improve an electrical product? Year 4 - Electrical products can be planned and built.			

Term	Unit	Key Learning and Substantive Knowledge	END POINTS AND KEY VOCABULARY		
		- Testing helps improve designs. Year 5 - Scientific knowledge helps improve electrical products. - Design decisions should be based on evidence. Year 6 - Circuit knowledge can be applied to develop and refine products for a purpose. - Evaluation helps identify strengths, weaknesses and possible improvements.			
Summer	Living Things & Their habitats – Classification How do scientists classify living things? Why is classification important for understanding and identifying living things?	Lesson 1: How can living things be grouped and classified? Year 4 - Living things can be grouped according to observable features. - Plants and animals can be sorted into groups based on similarities and differences. Year 5 - Scientists classify living things to make identification easier. - Vertebrates and invertebrates can be divided into further groups. Year 6 - Living things are classified into broad groups using observable characteristics. - Classification systems help scientists organise and compare organisms. Lesson 2: How do classification keys help us identify living things? Year 4 - Classification keys can help identify plants and animals. - Questions can be used to sort living things into groups. Year 5 - Identification keys follow a series of choices based on characteristics. - Different features can be used to classify organisms. Year 6 - Dichotomous classification keys are used to identify unknown organisms. - Scientists create classification keys using observable characteristics. Lesson 3: How are animals classified? Year 4 - Animals can be grouped into vertebrates and invertebrates. - Vertebrates have a backbone. Year 5 - Vertebrates can be grouped into fish, amphibians, reptiles, birds and mammals. - Invertebrates can be grouped according to shared characteristics. Year 6 - Animals are classified according to increasingly specific characteristics. - Scientific classification helps explain relationships between organisms. Lesson 4: Why do scientists use the Linnaean classification system?	By the End of Year 4, pupils should be able to: - Sort living things using observable characteristics. - Identify vertebrates and invertebrates. - Use simple classification keys. - Describe similarities and differences between organisms. - Recognise that scientists classify living things. Vocabulary classify, classification, characteristic, vertebrate, invertebrate, fish, bird, mammal, reptile, amphibian, identify.	By the End of Year 5, pupils should be able to: - Explain how animals are grouped into major classification groups. - Use and create simple classification keys. - Describe characteristics of vertebrate and invertebrate groups. - Explain why classification is useful. - Recognise the role of microorganisms in the living world. Vocabulary classification key, dichotomous key, organism, species, fungi, bacteria, microorganism, observable characteristics, biodiversity.	By the End of Year 6, pupils should be able to: - Explain how living things are classified into broad and specific groups. - Use and create classification keys accurately. - Describe the Linnaean classification system. - Explain how microorganisms are classified and their significance. - Use scientific evidence to justify classification decisions. - Explain why classification systems are important to science. Vocabulary taxonomy, kingdom, phylum, class, order, family, genus, species, microorganism, classification system, evidence, biodiversity.

Term	Unit	Key Learning and Substantive Knowledge	END POINTS AND KEY VOCABULARY		
		Year 4 - Scientists need a consistent way to organise living things. - Carl Linnaeus developed a system of classification. Year 5 - The Linnaean system groups organisms from broad categories to specific categories. - Scientific classification is used by scientists around the world. Year 6 - The Linnaean classification system uses hierarchical levels including Kingdom, Phylum, Class, Order, Family, Genus and Species. - Organisms are classified according to shared characteristics and evolutionary relationships. Lesson 5: What are microorganisms and how are they classified? Year 4 - Some living things are too small to see without magnification. - Microorganisms are living things. Year 5 - Bacteria, fungi and other microorganisms belong to different classification groups. - Microorganisms can be both useful and harmful. Year 6 - Microorganisms form important classification groups within the living world. - Scientists classify microorganisms according to their characteristics and functions. Lesson 6: How do microorganisms affect our lives? Year 4 - Some microorganisms can cause food to decay. - Some microorganisms are useful. Year 5 - Microorganisms can help make foods such as bread and yoghurt. - Some microorganisms can cause disease. Year 6 - Microorganisms play important roles in decomposition, food production and medicine. - Scientific discoveries involving microorganisms have changed human health. Lesson 7: How do scientists discover and classify new species? Year 4 - Scientists continue to find new plants and animals. - New discoveries need to be identified and described. Year 5 - Scientists compare characteristics with known organisms. - Careful observations support classification.			

Term	Unit	Key Learning and Substantive Knowledge	END POINTS AND KEY VOCABULARY		
		Year 6 - Newly discovered species are classified using scientific evidence and existing classification systems. - Classification can change when new evidence becomes available. Lesson 8: Why can some living things be difficult to classify? Year 4 - Some organisms have unusual features. - Not all living things fit neatly into groups. Year 5 - Scientists sometimes debate how animals should be classified. - Observable characteristics may overlap between groups. Year 6 - Classification decisions can be challenged by unusual organisms, such as the platypus. - Scientific explanations evolve as evidence develops. Lesson 9: How can we create our own classification key? Year 4 - Questions can be used to sort living things. - Keys can help identify simple groups. Year 5 - Effective questions separate organisms based on observable features. - Classification keys should be clear and logical. Year 6 - Scientists design classification keys using precise scientific characteristics. - Keys can be tested and refined using evidence. Lesson 10: What evidence is used to classify living things? Year 4 - Scientists observe features carefully. - Evidence helps identify organisms. Year 5 - Scientific evidence supports classification decisions. - Similarities and differences help scientists group organisms. Year 6 - Classification uses evidence from observations, research and scientific investigation. - New evidence can lead to changes in scientific understanding. Lesson 11: How have scientists contributed to classification? Year 4 - Carl Linnaeus helped develop classification systems. - Scientists study living things to learn more about them. Year 5			

Term	Unit	Key Learning and Substantive Knowledge	END POINTS AND KEY VOCABULARY		
		- Scientists such as Linnaeus have helped improve understanding of biodiversity. - Classification helps communication between scientists. Year 6 - Scientists including Carl Linnaeus, Edward Jenner and Alexander Fleming have advanced biological science. - Scientific discoveries continue to improve our understanding of living things. Lesson 12: Why is classification important? Year 4 - Classification helps organise living things. - Scientists use classification to identify organisms. Year 5 - Classification helps scientists study biodiversity. - Organisms can be grouped according to shared characteristics. Year 6 - Classification allows scientists to understand relationships between living things. - Scientific classification supports research, conservation and discovery.			

Progression in disciplinary knowledge

Curriculum strand	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Working scientifically	CONTINUOUS PROVISION → Early Learning Goals: 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						
Plan (Questioning and Predicting)	- Think of some questions to ask - Choose the resources they need for their chosen activities and say when they do or do not need help	- Ask simple questions with scaffolding if necessary within taught science topics and in everyday - Suggest ways of answering a question.	- Ask simple questions. - Recognise that questions can be answered in different ways.	- Ask relevant questions with support if necessary. - Use different types of scientific enquiry to answer questions. - Set up simple & practical enquiries. - Begin to understand what comparative & fair tests are and why they are important.	- Ask relevant questions. - Use different types of scientific enquiries to answer their questions. - Set up simple and practical enquiries, comparative and fair tests.	- Plan different types of scientific enquiries to answer questions. - With modelling and support, recognise and control variables where necessary within enquiries.	- Plan different types of scientific enquiries to answer questions. - Recognise and control variables where necessary.

Do (Planning and Carrying Out Investigations)	- Perform a simple test - Discuss what they can see, touch, smell, hear, feel or taste - Identify and classify things they observe	- With direction when needed, observe closely. - Conduct simple tests, with support. - Identify and classify with guidance.	- Observe closely, using simple equipment. - Perform simple tests. - Identify and classify.	- Make systematic and careful observations, using simple equipment. - Begin to explore using a range of simple equipment to take such measurements e.g., thermometers and data loggers - Use standard units when taking measurements where appropriate.	- Make systematic and careful observations using a range of equipment, including thermometers and data loggers. - Take accurate measurements using standard units, where appropriate.	- Continue to explore using a range of scientific equipment to take measurements, working with increasing accuracy and precision. - Begin to understand the need for, and to take repeat readings of measurements.	- Use a range of scientific equipment to take measurements. - Take measurements with increasing accuracy and precision. - Take repeat readings when appropriate.
Record (Taking and Recording Observations, Measurements and Results)	- Show their work using pictures, labels and captions - Use simple equipment to help them make observations	- Gather and record data to help in answering questions in a variety of ways. - With modelling and scaffolding as appropriate, begin to use simple scientific language in their recording.	- Record and communicate their findings in a range of ways and begin to use simple scientific language. - Gather and record data to help answer questions.	- With modelling & guidance, gather, record, classify & present data in a variety of ways to help to answer questions. - Use various ways of recording, grouping & displaying evidence - suggest how findings may be tabulated.	- Gather, record, classify & present data in a variety of ways to help to answer questions. - Record findings using simple scientific language, drawings and labelled diagrams, keys, bar charts, and tables.	- With modelling and guidance, record data and results. - Record data using labelled diagrams, keys, tables and charts. - Begin to use line graphs to record data.	Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, bar charts and line graphs.
Review	- Describe / explain what they have done - Explain what they have found out - Answer some scientific questions - Give a simple reason for their answer	Use their observations and own ideas to suggest answers to questions	Use their observations and ideas and developing scientific knowledge to suggest answers to questions.	- Begin to separate results and conclusions and with support, report on their enquiry in relation to the question asked - With modelling and support, use results to make simple conclusions, suggest improvements & raise further questions. - Report their findings in a variety of ways	- Report on their findings, results and conclusions in different ways including oral & written explanations, displays and presentations. - Identify differences, similarities or changes related to simple scientific ideas & processes. - Use straightforward scientific evidence to answer questions or to support their findings. - Use results to draw simple conclusions,	- Report and present findings from enquiries, including conclusions and, with support, suggest causal relationships. - Continue to develop ways in which to present findings from enquiries, both orally and in writing, - Suggest further comparative or fair tests and introduce the concept of 'trust' in results.	- Report and present findings from enquiries, including conclusions and causal relationships. - Report & present findings from enquiries in oral and written forms such as displays and other types of presentation. - Report and present findings from enquiries, including explanations of, & degree of, trust in results. - Identify scientific evidence that has been used to

					make predictions for new values,		
					suggest improvements & raise further questions.		support or refute ideas or arguments. • Use test results to make predictions to set up further comparative and fair tests.