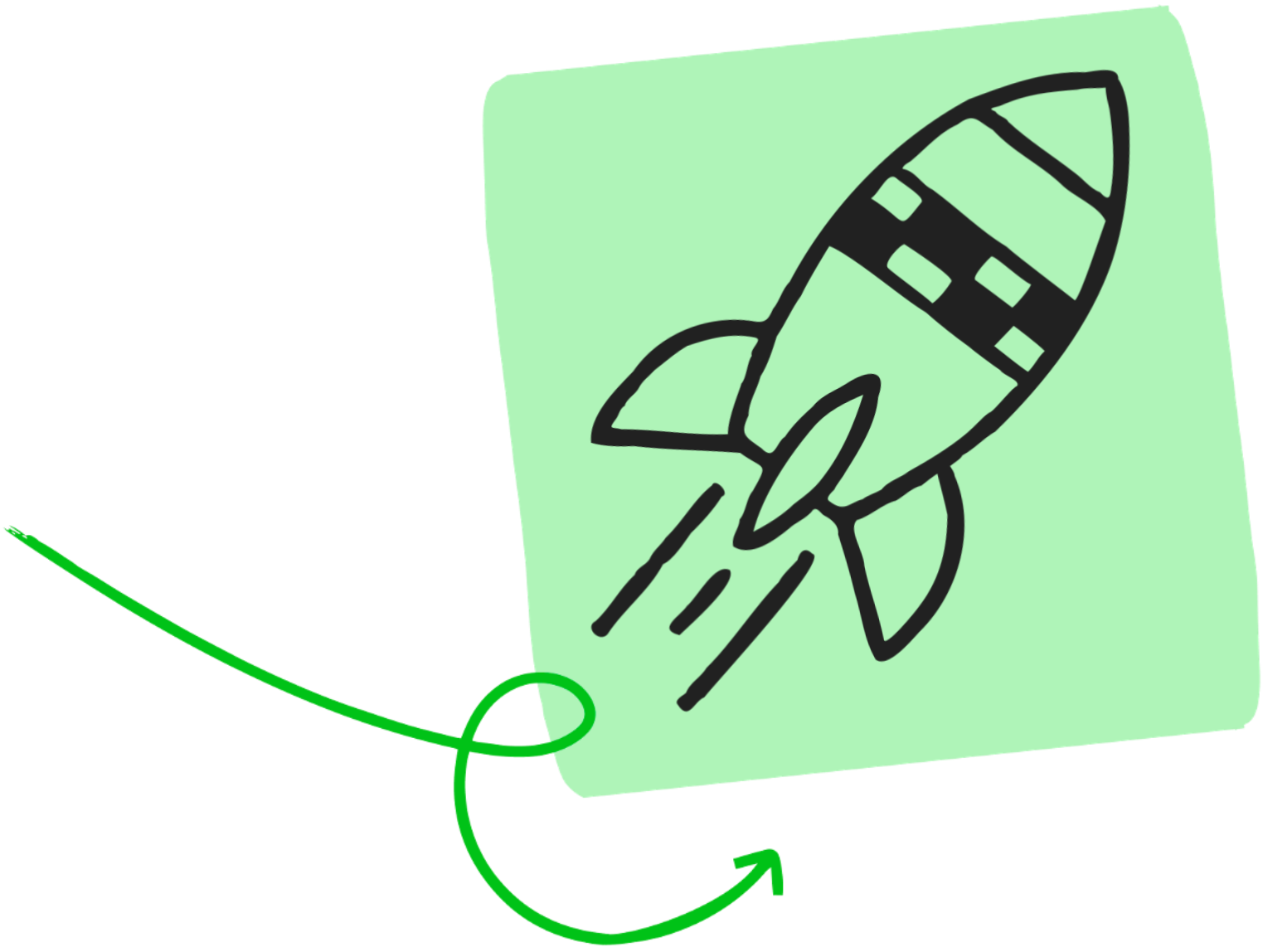
Oak National Academy

KS1 & KS2 Science curriculum plan



Contents

Our curriculum

All of our curricula share the same set of principles that guide our curriculum design to ensure our curricula are high-quality. They are:

Knowledge and vocabulary rich

Lessons and units are knowledge and vocabulary rich. Pupils will build on what they already know to develop deep knowledge and apply this knowledge in the form of skills.

Sequenced and coherent

Careful sequencing and attention to building coherence via vertical threads so that pupils build on prior knowledge and make meaningful connections.

Flexible

Our flexible curriculum enables schools to tailor our content to their curriculum and context.

Accessible

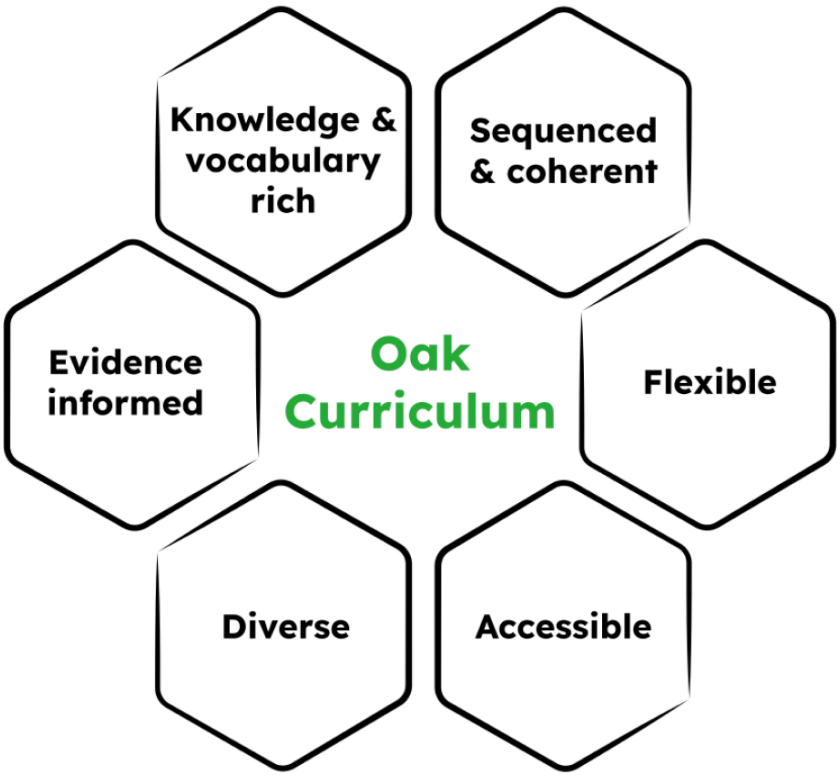
Creating an accessible curriculum that addresses the needs of all pupils and meets accessibility guidelines and requirements.

Diverse

We prioritise creating a diverse curriculum by committing to diversity in teaching and teachers, and the language, texts and media we use, so all pupils feel positively represented.

Evidence-informed

We take an evidence-informed approach applying the science of learning and subject-specific research.



Threads

What are threads?

We use threads to signpost groups of units that link to one another, that together build a common body of knowledge over time. We use the term thread, rather than vertical concepts, themes or big ideas, because it helps us bring to mind the visual concept of a thread weaving through the curriculum.

How to use threads

1. Familiarise yourself with all of the threads relating to the subject
2. Identify the unit you will be delivering
3. Review the threads associated with the unit
4. Audit where pupils have and will learn about these threads in your existing curriculum sequence.
5. Ensure you understand how the thread relating to your new unit has been framed in prior and future units
6. Review how the thread works within the unit you will be delivering
7. Teach and iterate your framing of the thread within the unit and across your curriculum sequence

Threads in subject

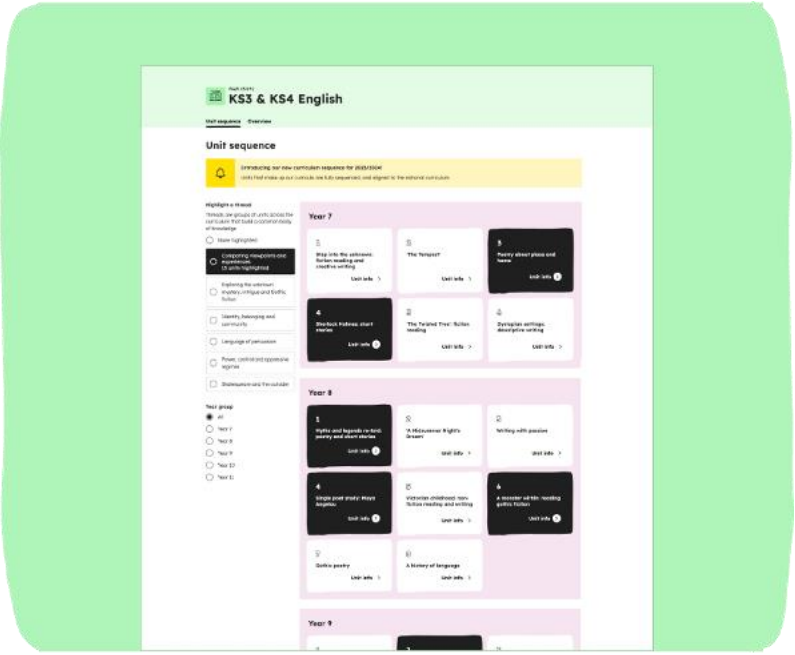
- BQ01 Biology: What are living things and what are they made of?
- BQ02 Biology: How do living things grow and reproduce?
- BQ03 Biology: How do living things live together in their environments?
- BQ04 Biology: Why are there similarities and differences between living things?
- BQ05 Biology: How do living things stay healthy?
- BQ06 Chemistry: How do we explain how substances behave?
- BQ07 Chemistry: What are things made of?
- BQ08 Chemistry: How can substances be made and changed?
- BQ09 Chemistry: How can we explain changes in the air, land and oceans?
- BQ11 Physics: How do forces make things happen?
- BQ12 Physics: How do we see, hear and communicate?
- BQ13 Physics: How do electricity and magnetism work?
- BQ14 Physics: How does the Earth fit into the Universe?
- BQ15 How can we live sustainably to protect Earth for a better future?
- BQ10 Physics: Why do materials have different properties?

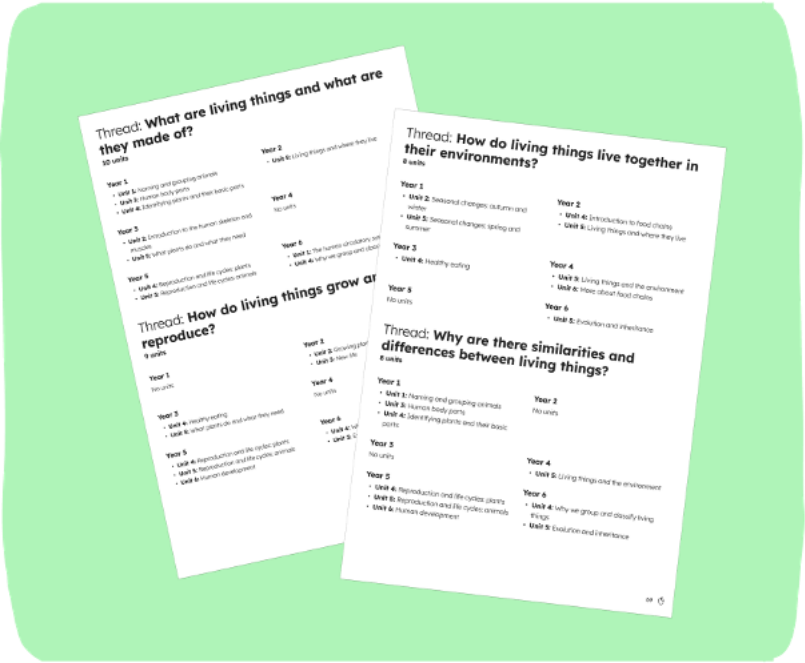
Tools for using threads

Online curriculum

Our interactive tool enables you to visualise how threads are sequenced across our curriculum plans.

Go to online curriculum





Threads in this document

The appendix displays the threads and their related units.

Go to threads appendix

Science curriculum explainer

Aims and purpose

What are the aims and purpose of our curriculum?

With this curriculum, we aim to develop an interest in passion for science by exploring answers to big questions like '"How do forces make things happen?'" We combine substantive and disciplinary knowledge to make practical skills, mathematical proficiency, and scientific practices meaningful.

Oak curriculum principles

What overarching curriculum principles inform the design of our curriculum?

Knowledge and vocabulary rich

This principle recognises the important role that knowledge, and vocabulary as a particularly important type of knowledge, plays in learning. We identify and map vocabulary across the curriculum, both the introduction of new vocabulary and the necessary repetition of vocabulary that has gone before. New vocabulary, called keywords, are signalled in bold in our lesson materials to indicate their importance. Our curriculum develops pupils' knowledge and understanding of scientific concepts over time. As concepts evolve, so do their definitions, for example, 'group' becomes 'classify' as pupils move through the key stages.

Sequenced and coherent

The sequencing of our curriculum content underpins its design so that pupils build on and make links with existing knowledge. At its simplest, this means ensuring, for example, that pupils will learn about a living thing (organism) using common processes such as criteria for life before being introduced to cells and cell structures. Curriculum threads, which provide coherence by mapping vertical concepts across the curriculum, mirror the 'big questions' in science. For example, 'How do we explain how substances behave?' is first addressed in key stage 1 by identifying everyday materials and their properties. This foundational knowledge is built upon in key stage 2 with reversible and irreversible changes. By key stage 3, pupils delve into more complex topics like solutions and separation techniques, preparing them for advanced concepts in key stage 4 like rates of reaction and industrial chemistry.

Evidence-informed

Our evidence-informed approach enables the rigorous application of research outcomes, the science of learning and impactful best practices both in education in general and at a subject-specific level. For example, the design of our resources reflects findings from Sweller's cognitive load theory and Mayer's principles of multimedia learning whilst our lesson design draws on Rosenshine's principles of instruction. We also draw on findings from research organisations such as the Education Endowment Foundation (EEF). At the subject level, our curriculum is inspired by the Best Evidence Science Teaching (BEST) research-informed curriculum development project and is structured to incorporate the outcomes of this research, including

appropriately sequenced steps for learning progression and diagnostic questions that provide evidence of learning and common misconceptions, with response activities to challenge misconceptions.

Flexible

Our flexible approach enables schools to use our resources in a way that fits their content and meets the varying needs of teachers and their pupils. Our curriculum can be used in its entirety or units can be selected to complement existing curricula. Our resources are adaptable so that, for example, teachers can easily add in more or different examples to explanations, can edit or add checks for understanding, or adapt practice tasks to better reflect the prior knowledge of their pupils. At key stage 4 teachers and pupils can select a pathway aligned to the most frequently used exam board specifications for GCSE Science: AQA, Edexcel or OCR.

Diverse

Our commitment to breadth and diversity in content, language, texts, and media can be seen throughout the curriculum, for example, in the diverse school-age characters featured in our resources. Our curriculum highlights the achievements of scientists from different genders, ethnicities, and nationalities to ensure a diversity of perspectives and experiences. This approach ensures that our science curriculum is inclusive and reflective of the global scientific community.

Accessible

Our curriculum is intentionally designed to facilitate high-quality teaching as a powerful lever to support pupils with SEND. Aligned with EEF guidance, our resources have a focus on clear explanations with scientific diagrams, modelling and frequent checks for understanding, with guided and independent practice. Lessons are chunked into learning cycles and redundant images and information are minimised to manage cognitive load. We have removed reference to year groups in our resources so that they can be used when pupils are ready, regardless of their age. Our resources are purposefully created to be accessible, for example by using accessible fonts, colours with good contrast, and captions in our videos.

Oak subject principles

What subject specific principles inform the design of our curriculum?

Building knowledge of key concepts in a way that reflects how knowledge is organised in the three scientific disciplines

Our science curriculum structures knowledge to reflect the organisation of biology, chemistry, and physics, introducing concepts in a logical sequence from basic to advanced topics. Fundamental ideas are taught with consistent language and models across disciplines. For example, students begin with basic material properties and advance to complex topics like chemical reactions.

Pairing substantive and disciplinary knowledge, particularly around practical work

Our curriculum combines substantive knowledge (concepts) with disciplinary knowledge (scientific methods) to enhance practical work. For instance, in studying chemical reactions, students learn core concepts like reactants and products while also developing skills in

measurement and data analysis through experiments. This approach ensures that practical activities are purposeful and clearly linked to theoretical concepts.

A ‘big ideas’ approach to developing subject concepts

We use a ‘big ideas’ approach to create ‘big questions’ in science that link concepts across the curriculum. For example, with the question “Why are there similarities and differences between living things?” we start with identifying plants and animals in key stage 1, study habitats and basic biology in key stage 2, delve into cellular biology and genetics in key stage 3, and cover evolution and biotechnology in key stage 4. This ‘big question’ helps students from key stage 1 to key stage 4 connect new knowledge with prior learning.

Where there is a practical focus, it builds knowledge through the use of carefully planned and purposeful practical activities

Practical work is carefully planned; a physics experiment on forces is carefully designed to connect substantive knowledge of force interactions with the disciplinary skills of measuring and analysing data. Each activity is sequenced to build on previous knowledge, ensuring students engage deeply with the material. Additional materials outline the purpose of each practical task and assist teachers and pupils in carrying it out safely.

Where mathematics is taught or used in science, alignment with the sequence, language and approach used in the mathematics curriculum is considered

The mathematical skills used in science align with the Oak mathematics curriculum. When teaching data analysis, we use the same methods and language as in mathematics lessons, helping students to apply their mathematical knowledge effectively in scientific contexts. Where there are differences between the approaches in mathematics and science they are explicitly shared with pupils so that they can make connections between the two subjects.

National curriculum

How does our curriculum reflect the aims & purpose of the national curriculum?

There are 3 aims of the national curriculum. First, is that all ‘pupils develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics’. Each of our curriculum threads is explicitly signposted as sitting within biology, chemistry or physics. For example, ‘Biology: What are living things and what are they made of?’ or ‘Chemistry: What are things made of?’. This means that pupils are taught knowledge from within each discipline, building from fundamentals such as grouping animals and plants to the more complex elements such as genetic engineering.

The next aim is to ‘develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them’. Our curriculum incorporates a diverse range of scientific enquiries, such as investigating the effect of light on the rate of photosynthesis and exploring how different materials conduct heat, which places emphasis on the scientific method. These activities encourage critical thinking, provide hands-on activities, use models such as the solar system to explain abstract concepts, and foster reflection and discussion.

The last aim is that pupils ‘are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future’. Our curriculum links scientific concepts to real-world applications, fosters discussions on the ethical and societal impacts of scientific developments, and encourages pupils to think critically about how science influences the future in fields like sustainability and health. For example in the year 11 "Biology: Gene Technology" unit, pupils explore how advances in understanding the human genome, such as gene therapy, impact medicine, and assess the benefits, risks, and ethics of genetic engineering in agriculture and healthcare.

Curriculum delivery

What teaching time does our curriculum require?

Our curricula for key stages 1-3 are designed for 36 weeks of curriculum time across the school year, which leaves time for other activities both within and beyond the curriculum, such as assessments or school trips. At key stage 4, year 10 also has 36 weeks of curriculum time, but year 11 has only 24 weeks (approximately 2 terms) to recognise that schools will not be teaching new content in the run-up to the GCSE exams.

At key stage 1, our curriculum has been designed to teach one weekly lesson, approximately 40 minutes long. In key stage 2 there are two lessons per week lasting 50 minutes to an hour each. At key stage 3, there are three lessons per week and three or four lessons at key stage 4, depending on whether pupils are following a combined science or separate science pathway. Key stage 3 and 4 lessons are designed to last one hour.

We understand that the exact time dedicated to science can vary greatly between schools due to differences in curriculum planning, resource allocation, and school-specific priorities. Therefore, we fully expect and encourage teachers to adapt our curriculum and resources to best suit their needs and available curriculum time. This is particularly important in key stage 4, where classes may be streamed and pupils may be following different exam pathways or studying for different tiered papers at a range of levels.

Curriculum coherence

What are 'threads'?

We use threads to signpost groups of units that link to one another and build a common body of knowledge over time. Our science threads are ‘big questions’ driven by the big ideas in science. We use the term thread rather than vertical concepts, themes, or big ideas because it helps to bring to mind the visual concept of a thread weaving through the curriculum.

Our science threads that weave through both our primary and secondary curricula reflect the three science disciplines plus one ‘big question’ that sits across all three:

Biology

- What are living things and what are they made of?
- How do living things grow and reproduce?
- How do living things live together in their environments?

- Why are there similarities and differences between living things?
- How do living things stay healthy?

Chemistry

- How do we explain how substances behave?
- What are things made of?
- How can substances be made and changed?
- How can we explain changes in the air, land, and oceans?

Physics

- Why do materials have different properties?
- How do forces make things happen?
- How do we see, hear, and communicate?
- How do electricity and magnetism work?
- How does the Earth fit into the Universe?

Cross-disciplinary

- How can we live sustainably to protect Earth for a better future?

The threads revisit and develop scientific knowledge and understanding with increasing complexity over time. For example, pupils develop their understanding of living things via the ‘Why are there similarities and differences between living things?’ thread. They are first taught about ‘Naming and Grouping Animals’ in key stage 1, before building on this in key stage 2 by learning about ‘Living Things and the Environment’. In key stage 3 pupils learn about ‘Species and Classification’ and in key stage 4 ‘Variation and Natural Selection’. Consistent threads across our primary and secondary curricula can enable a more effective transition, helping pupils to bridge their knowledge and understanding from primary to secondary.

We have recently added a new cross-disciplinary thread: ‘How can we live sustainably to protect Earth for a better future?’ This thread connects scientific knowledge from biology, chemistry, and physics, helping pupils understand human impact on the Earth and explore science-based solutions for a sustainable future.

Recommendations from subject specific reports

How does our curriculum address and enact recommendations from subject specific reports (e.g. EEF guidance reports & Ofsted Research Review)?

Our science curriculum incorporates EEF recommendations from 2018 and 2023, emphasising the importance of building on pupils’ prior knowledge, addressing misconceptions, and providing meaningful feedback. Classroom dialogue from primary is further developed in secondary education with advanced scientific reading and writing knowledge and skills. Scientific vocabulary is explicitly taught, with increasing complexity and connections to word origins. For example, in key stage 4, when studying genetics, vocabulary such as "homozygous" and "heterozygous" is explicitly taught, highlighting the etymology. This reinforces connections between words, deepening pupils' understanding of complex biological concepts.

The recent Ofsted subject report for science highlights the need for high-quality, purposefully planned practical work. For example, in key stage 4, a practical experiment investigating the effect of light intensity on the rate of photosynthesis allows students to observe how varying light levels impact oxygen production in pondweed. Links between substantive knowledge (photosynthesis and light as a limiting factor) and disciplinary knowledge (conducting controlled experiments and analysing data) enhance pupils' retention and application of what they've learned and there is sufficient time for pupils to interpret and explain the observations and measurements made.

Subject-specific needs

How does our curriculum deal with elements that arise from the specific needs of the subject?

How are practicals featured in the curriculum?

Practical work is purposeful and clearly linked to curriculum content. Video clips and GIFs help pupils visualise techniques before they engage in the activities, ensuring they understand the procedures. If hands-on practicals aren't possible, lessons include videos that demonstrate equipment use. For example, if a microscope is not available for a biology lesson on microscopy, pupils can instead watch a video showing how to prepare and view a slide under the microscope.

How does the science curriculum link to our curricula in other subjects?

The curriculum is planned to align with other subjects, such as mathematics. In science lessons, students apply mathematical skills to tasks like calculating means and plotting graphs when analysing experimental data. Graphing techniques and statistical methods are consistent with those taught in mathematics to maintain continuity between subjects, while also addressing subject-specific differences. These differences are explicitly highlighted; for example, in science, the line of best fit may be curved to show a general trend, whereas in mathematics, it is usually a straight line.

Our curriculum partner

The Centre for Industry Education Collaboration (CIEC), from the University of York, are passionate about excellence in primary science teaching and learning, increasing children's and teachers' awareness of STEM careers and industries, and raising children's science capital. They have collaborated with the University of York Science Education Group (UYSEG) to develop primary-focused Best Evidence Science Teaching (BEST).

Year 1 units

View interactive sequence online

1 **Naming and grouping animals**	**2** **Seasonal changes: autumn and winter**	**3** **Human body parts**
4 **Identifying plants and their basic parts**	**5** **Seasonal changes: spring and summer**	**6** **Everyday materials**

1. Naming and grouping animals

Year 1: Biology

Go to unit resources

Threads

- BQ01 Biology: What are living things and what are they made of?
- BQ04 Biology: Why are there similarities and differences between living things?

Unit description

This unit focuses on asking simple questions, identifying and classifying common animals, and gathering data. It includes identifying animals like fish, amphibians, reptiles, birds, and mammals, categorising them as carnivores, herbivores, or omnivores, and comparing their structures.

Why this, why now?

This unit introduces pupils to the big question, What are living things and what are they made of?, by focusing on Naming and grouping animals. Pupils learn to classify animals based on characteristics and explore the diversity of life. This foundational knowledge prepares them for the next unit, Introduction to food chains, where they will apply their understanding of animal groups to explore how animals interact within ecosystems, reinforcing the importance of classification in understanding living organisms.

Lessons in unit

1. Naming and grouping familiar animals
2. Naming mammals
3. Naming birds and reptiles
4. Naming fish and amphibians
5. Animal structure
6. What animals eat

Prior knowledge requirements

- Explore the natural world around them, making observations of common animals, including pets
- Notice some similarities and differences between different animals
- Begin to understand the need to respect and care for all living things

2. Seasonal changes: autumn and winter

Year 1: Biology, Physics

Go to unit resources

Threads

- BQ03 Biology: How do living things live together in their environments?
- BQ12 Physics: How do we see, hear and communicate?
- BQ14 Physics: How does the Earth fit into the Universe?

Unit description

This unit explores observing changes across autumn and winter, including weather patterns and variations in day length. It emphasises asking questions, using simple equipment for observations, identifying and classifying, gathering data, and using observations to answer questions.

Why this, why now?

This unit introduces Year 1 pupils to the big question, How do living things live together in their environments?, by focusing on Seasonal changes: autumn and winter. Pupils will learn about how the weather and daylight change during these seasons. This helps them get ready for the next unit, Seasonal changes: spring and summer, where they will continue to explore how the seasons change, helping them understand how the Earth's movement causes these changes throughout the year.

Lessons in unit

1. Signs of autumn
2. Weather in autumn
3. Signs of winter
4. Weather in winter
5. Day length in winter

Prior knowledge requirements

- Explore the natural world around them using their senses
- Know some similarities and differences between different seasons
- Understand some important processes and changes in the natural world, including the seasons
- Begin to associate different types of weather with different seasons

3. Human body parts

Year 1: Biology, Physics

Go to unit resources

Threads

- BQ01 Biology: What are living things and what are they made of?
- BQ04 Biology: Why are there similarities and differences between living things?
- BQ12 Physics: How do we see, hear and communicate?

Unit description

This unit focuses on identifying, naming, and labelling the basic parts of the human body, linking each part to its associated sense. It emphasises closely observing using simple equipment, classifying findings, gathering and recording data, and using observations to suggest answers to questions.

Why this, why now?

This unit introduces Year 1 pupils to the big question, What are living things and what are they made of?, by focusing on Human body parts. Pupils will learn to identify and name the basic parts of the human body and link them to their senses. This prepares them for the next unit, Introduction to the human skeleton and muscles, where they will explore how bones and muscles support movement, helping them build a deeper understanding of how their bodies work.

Lessons in unit

1. Humans are animals
2. Body parts on the outside
3. Body parts on the inside
4. Body parts for our senses
5. More about sight, smell and sound
6. More about taste and touch

Prior knowledge requirements

- Make observations of different animals including humans
- Notice some similarities and differences between people who are familiar to them
- Name and locate some basic parts of the human body
- Use senses when exploring the natural world

4. Identifying plants and their basic parts

Year 1: Biology

Go to unit resources

Threads

- BQ01 Biology: What are living things and what are they made of?
- BQ04 Biology: Why are there similarities and differences between living things?

Unit description

This unit focuses on identifying and naming common wild and garden plants, including deciduous and evergreen trees. It covers the basic structure of flowering plants and trees. Emphasis is on asking questions, observing closely, classifying, and gathering data to suggest answers to questions.

Why this, why now?

This unit introduces Year 1 pupils to the big question, What are living things and what are they made of?, by focusing on Identifying plants and their basic parts. Pupils will learn to recognise common plants and understand the basic structure of flowers and trees. This prepares them for the next unit, Growing plants, where they will explore how plants grow and what they need to stay healthy, deepening their understanding of plant life and how living things differ.

Lessons in unit

1. Plants around our school or home
2. Structure of a tree
3. Naming trees
4. Deciduous and evergreen trees
5. Structure of a flowering plant
6. Common flowering plants
7. Wildflowers

Prior knowledge requirements

- Explore the natural world around them, making observations of a range of plants.
- Notice some similarities and differences between plants in their local environment.
- Describe some important processes in the natural world around them, such as how plants can change throughout the year.

5. Seasonal changes: spring and summer

Year 1: Biology, Physics

Go to unit resources

Threads

- BQ03 Biology: How do living things live together in their environments?
- BQ12 Physics: How do we see, hear and communicate?
- BQ14 Physics: How does the Earth fit into the Universe?

Unit description

This unit explores observing changes across spring and summer, including weather patterns and variations in day length. It emphasises asking questions, using simple equipment for observations, identifying and classifying, gathering data, and using observations to answer questions.

Why this, why now?

This unit introduces Year 1 pupils to the big question, How do living things live together in their environments?, by focusing on Seasonal changes: spring and summer. Pupils will learn about how the weather and daylight change during these seasons. This helps them get ready for the next unit, Seasonal changes: autumn and winter, where they will continue to explore how the seasons change, helping them understand how the Earth's movement causes these changes throughout the year.

Lessons in unit

1. Signs of spring
2. Weather in spring
3. Signs of summer
4. Weather in summer
5. Day length in summer

Prior knowledge requirements

- Explore the natural word around them using their senses
- Know some similarities and differences between different seasons
- Understand some important processes and changes in the natural world, including the seasons
- Begin to associate different types of weather with different seasons

6. Everyday materials

Year 1: Chemistry, Physics

Go to unit resources

Threads

- BQ06 Chemistry: How do we explain how substances behave?
- BQ07 Chemistry: What are things made of?
- BQ10 Physics: Why do materials have different properties?
- BQ15 How can we live sustainably to protect Earth for a better future?

Unit description

This unit focuses on distinguishing objects from the materials they are made of, identifying common materials like wood, plastic, and metal, and describing their physical properties. It involves comparing and grouping materials, performing simple tests, and using observations to answer questions.

Why this, why now?

This unit introduces Year 1 pupils to the big question, How do we explain how substances behave?, by focusing on Everyday materials. Pupils will learn to identify materials like wood, plastic, and metal and describe their properties. This prepares them for the next unit, Uses of everyday materials, where they will explore how different materials are suited for specific purposes, helping them understand how the properties of materials determine their use in everyday life.

Lessons in unit

1. Everyday objects and materials
2. Materials for recycling
3. The 3 Rs (non-statutory - Climate Change & Sustainability)
4. Material properties
5. Development of new materials (non-statutory)
6. Waterproof materials: plan and do
7. Waterproof materials: review
8. Transparent and opaque materials: plan and do
9. Transparent and opaque materials: review

Prior knowledge requirements

- Explore the natural world around them, making observations of a range of non-living things
- Understand some important processes and changes in the natural world around them, including changing states of matter.
- Use their senses to explore different materials
- Notice some similarities and differences between different materials

Year 2 units

View interactive sequence online

1 **Uses of everyday materials**	**2** **Growing plants**	**3** **New life**
4 **Introduction to food chains**	**5** **Living things and where they live**	**6** **Healthy me**

1. Uses of everyday materials

Year 2: Chemistry, Physics

Go to unit resources

Threads

- BQ07 Chemistry: What are things made of?
- BQ08 Chemistry: How can substances be made and changed?
- BQ10 Physics: Why do materials have different properties?

Unit description

This unit explores identifying and comparing the suitability of everyday materials like wood, metal, and plastic for specific uses. It examines how solid objects' shapes can change by squashing, bending, twisting, and stretching. The focus is on simple tests, and using data to answer questions.

Why this, why now?

This unit builds on pupils' prior learning from Everyday materials, where they learned to identify materials and describe their properties. In Uses of everyday materials, pupils will explore how different materials are suited for specific tasks based on their characteristics. This prepares them for the next unit, Introduction to states of matter and changing states, where they will learn about solids, liquids, and gases, deepening their understanding of how materials can change form under different conditions.

Lessons in unit

1. Materials and their uses
2. Suitable and unsuitable materials
3. Where materials come from
4. Absorbent materials
5. Stretchy materials
6. Changing shape: plan and do
7. Changing shape: review

Prior knowledge requirements

- Distinguish between an object and the material from which it is made
- Identify and name a variety of everyday materials
- 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

2. Growing plants

Year 2: Biology

Go to unit resources

Threads

- BQ02 Biology: How do living things grow and reproduce?
- BQ05 Biology: How do living things stay healthy?
- BQ15 How can we live sustainably to protect Earth for a better future?

Unit description

This unit covers observing and describing how seeds and bulbs grow into mature plants, and understanding how water, light, and temperature affect plant growth and health. It involves performing simple tests, using observations to answer questions, and gathering data to explore plant needs.

Why this, why now?

This unit builds on pupils' prior learning from Identifying plants and their basic parts, where they learned to recognise common plants and their basic structures. In Growing plants, pupils will explore how plants grow from seeds and bulbs and what they need to stay healthy. This prepares them for the next unit, What plants do and what they need, where they will dive deeper into understanding the functions of different plant parts and how plants meet their needs to survive and thrive.

Lessons in unit

1. Plants from seeds
2. Plants from bulbs
3. What plants need to grow and stay healthy
4. Plant health and growth
5. Plants without water
6. Plants without warmth
7. Plants without light
8. Grow your own food (non-statutory - Climate Change & Sustainability)

Prior knowledge requirements

- Explore the natural world around them, making observations of a range of plants
- Notice some similarities and differences between plants in their local environment
- Describe some important processes in the natural world around them, such as how plants can change throughout the year
- Identify and name a variety of common wild and garden plants, including trees
- Identify and describe the basic structure of a variety of common flowering plants, including trees

3. New life

Year 2: Biology

Go to unit resources

Threads

- BQ02 Biology: How do living things grow and reproduce?
- BQ05 Biology: How do living things stay healthy?

Unit description

This unit explores how animals, including humans, have offspring that grow into adults and examines their basic survival needs, such as water, food, and air. It focuses on asking questions, observing closely, identifying and classifying, and using observations to suggest answers to questions.

Why this, why now?

This unit builds on pupils' prior learning from Naming and grouping animals, where they learned to classify animals based on characteristics. In New life, pupils will explore how animals, including humans, have offspring that grow into adults. This prepares them for the next unit, Reproduction and life cycles: animals, where they will deepen their understanding by learning about the life cycles of various animals and the stages of growth and reproduction across different species.

Lessons in unit

1. Young animals
2. Growing up
3. Animal life cycles
4. Changes in animal life cycles
5. The basic needs of animals

Prior knowledge requirements

- Explore the natural world around them, making observations of common animals
- Notice some similarities and differences between different animals
- Begin to understand the need to respect and care for all living things
- Know that some animals have babies
- Know that baby animals grow and change over time

4. Introduction to food chains

Year 2: Biology

Go to unit resources

Threads

- BQ03 Biology: How do living things live together in their environments?

Unit description

This unit covers how animals obtain food from plants and other animals using simple food chains. It includes identifying and naming different food sources, asking questions, classifying, and gathering and recording data to answer questions about animal diets and food chains.

Why this, why now?

This unit builds on pupils' prior learning from Naming and grouping animals, where they learned to classify animals based on characteristics such as their diet and physical traits. In Introduction to food chains, pupils will explore how animals get their food and how food chains connect different living things. This prepares them for the next unit, More about food chains, where they will deepen their understanding of how food chains work by exploring more complex interactions between producers, predators, and prey in ecosystems.

Lessons in unit

1. How animals get food
2. Introduction to food chains
3. Roles within food chains
4. Comparing food chains

Prior knowledge requirements

- Explore the natural world around them,
- Make observations of what different animals might eat
- Know that animals including humans eat plants
- Identify and name a variety of common plants
- Identify and name a variety of common animals

5. Living things and where they live

Year 2: Biology

Go to unit resources

Threads

- BQ01 Biology: What are living things and what are they made of?
- BQ03 Biology: How do living things live together in their environments?

Unit description

This unit explores the differences between living, dead, and non-living things and examines how habitats support the needs of various plants and animals. It involves identifying and naming plants and animals in different habitats, using observations to classify, gather data, and answer questions.

Why this, why now?

This unit builds on pupils' prior learning from Naming and grouping animals, where they learned to classify animals based on their characteristics. In Living things and where they live, pupils will explore different habitats and how living things are suited to their environments. This prepares them for the next unit, Living things and the environment, where they will deepen their understanding by examining how living things interact with their environment and how changes in habitats can impact survival.

Lessons in unit

1. Living or non-living
2. Living things and movement
3. Alive, dead and never alive
4. Animal habitats
5. Plant habitats
6. Plants and animals in microhabitats
7. Protecting microhabitats

Prior knowledge requirements

- Explore the natural world around them, making observations of plants and animals
- Notice some similarities and differences between plants and animals in the local environment
- Begin to understand the need to respect and care for all living things
- Identify and name a variety of common wild and garden plants including trees
- Identify and name a variety of common animals, including fish, amphibians, reptiles, birds and mammals

6. Healthy me

Year 2: Biology

Go to unit resources

Threads

- BQ05 Biology: How do living things stay healthy?

Unit description

This unit covers the importance of exercise, balanced nutrition, and hygiene for humans. It involves performing simple tests, observing closely, and identifying and classifying information. Emphasis is on asking questions, using observations to suggest answers, and gathering and recording data.

Why this, why now?

This unit builds on pupils' prior learning from Human body parts, where they learned to identify and name basic parts of the body and their functions. In Healthy me, pupils will explore the importance of exercise, nutrition, and hygiene for keeping their bodies healthy. This prepares them for the next unit, Healthy eating, where they will deepen their understanding of how a balanced diet contributes to overall health and the body's nutritional needs for growth and development.

Lessons in unit

1. Washing hands
2. Brushing teeth
3. The importance of exercise
4. Different types of food
5. Different amounts of food
6. Food scientists
7. Staying healthy

Prior knowledge requirements

- Begin to understand the need to respect and care for all living things
- Begin to understand the importance of healthy food choices
- Manage their own basic hygiene and personal needs, including dressing, going to the toilet and keeping clean
- Move energetically, such as running, jumping, dancing, hopping, skipping and climbing
- Offer explanations for why things might happen, making use of recently introduced vocabulary

Year 3 units

View interactive sequence online

1 **Rocks and soils**	**2** **Introduction to the human skeleton and muscles**	**3** **Simple forces including magnets**
4 **Healthy eating**	**5** **What plants do and what they need**	**6** **Introduction to light and shadows**

1. Rocks and soils

Year 3: Chemistry, Physics

Go to unit resources

Threads

- BQ07 Chemistry: What are things made of?
- BQ09 Chemistry: How can we explain changes in the air, land and oceans?
- BQ10 Physics: Why do materials have different properties?
- BQ15 How can we live sustainably to protect Earth for a better future?

Unit description

This unit covers comparing and grouping rocks based on appearance and physical properties, understanding fossil formation, and recognising that soils are made from rocks and organic matter. It involves setting up practical enquiries, making observations, and using evidence to answer questions.

Why this, why now?

This unit builds on pupils' prior learning from Uses of everyday materials, where they explored the properties and uses of various materials. In Rocks and soils, pupils will investigate different types of rocks and soils, understanding their properties and how they are formed. This prepares them for the future unit, Evolution and inheritance, where they will explore how living things have changed over time, including how fossils provide evidence of past environments and the organisms that once lived in them.

Lessons in unit

1. Introduction to rocks
2. The appearance of rocks
3. Physical properties of rocks: hardness
4. Mohs' scale of hardness (non-statutory)
5. Physical properties of rocks: permeability
6. Everyday uses of rocks
7. Weathering and erosion of rocks
8. How fossils are formed
9. More about fossil formation
10. Mary Anning (non-statutory)
11. What soils are made from
12. Different types of soils (non-statutory)
13. Healthy soil (non-statutory Climate Change & Sustainability)
14. Soil permeability: plan (non-statutory)
15. Soil permeability: do and review (non-statutory)
16. How geologists work

Prior knowledge requirements

- Identify and name a variety of everyday materials, including rock
- Describe the simple physical properties of a variety of everyday materials
- Compare and group together different materials on the basis of their simple physical properties
- Compare the suitability of different materials, including rock, for particular uses

2. Introduction to the human skeleton and muscles

Year 3: Biology

Go to unit resources

Threads

- BQ01 Biology: What are living things and what are they made of?

Unit description

This unit explores the role of skeletons and muscles in humans and other animals for support, protection, and movement. It involves setting up practical enquiries, making observations, measuring accurately, recording findings, and using results to draw conclusions and suggest improvements.

Why this, why now?

This unit builds on pupils' prior learning from Human body parts, where they learned to identify and name basic parts of the body. In Introduction to the human skeleton and muscles, pupils will explore how the skeleton and muscles work together to support movement and protect vital organs. This prepares them for the next unit, Introduction to the human digestive system, where they will deepen their understanding by learning how the body processes food for energy and nutrients, building on their knowledge of body systems.

Lessons in unit

1. The human skeleton: support
2. The human skeleton: protection
3. Bone length: plan and do
4. Bone length: review
5. Animal skeletons
6. Animals without bones
7. Muscles for movement
8. Muscle strength: plan (non-statutory)
9. Muscle strength: do and review (non-statutory)
10. Improving muscle strength (non-statutory)

Prior knowledge requirements

- Identify, name, draw and label the basic parts of the human body
- Say which part of the body is associated with which sense

3. Simple forces including magnets

Year 3: Physics

Go to unit resources

Threads

- BQ11 Physics: How do forces make things happen?
- BQ13 Physics: How do electricity and magnetism work?

Unit description

This unit explores how objects move on different surfaces and examines magnetic forces, including attraction, repulsion, and magnetic materials. It covers identifying magnetic poles and predicting interactions and emphasizes practical tests, observations, and presenting findings.

Why this, why now?

This unit builds on pupils' prior learning from Everyday materials, where they explored the properties of different materials. In Simple forces including magnets, pupils will investigate how forces like pushes and pulls, along with magnetism, affect the movement of objects. This prepares them for the next unit, Forces including simple machines, where they will further develop their understanding by learning how levers, pulleys, and other simple machines help make tasks easier through the application of forces.

Lessons in unit

1. Different surfaces: plan
2. Different surfaces: do and review
3. Different surfaces in real life (non-statutory)
4. Contact forces
5. Magnetic force (non-statutory)
6. Magnetic force at a distance
7. Different magnets and their parts
8. Strongest magnet (non-statutory)
9. Magnetic and non-magnetic materials
10. Putting magnets together: attract or repel
11. Blocking magnetic force
12. Using magnets to solve problems (non-statutory: Scientists and Engineers)

Prior knowledge requirements

- Notice how things move on different surfaces using everyday experiences
- Use a magnet to explore everyday objects and materials

4. Healthy eating

Year 3: Biology

Go to unit resources

Threads

- BQ02 Biology: How do living things grow and reproduce?
- BQ03 Biology: How do living things live together in their environments?
- BQ05 Biology: How do living things stay healthy?
- BQ15 How can we live sustainably to protect Earth for a better future?

Unit description

This unit covers how animals, including humans, obtain nutrition from their diet, emphasising the need for the right types and amounts of food. It involves asking questions, gathering and presenting data, using scientific language, and interpreting evidence to answer questions and support findings.

Why this, why now?

This unit builds on pupils' prior learning from Healthy me, where they explored the importance of exercise, nutrition, and hygiene. In Healthy eating, pupils will focus on how a balanced diet contributes to overall health and well-being, learning about the different types of food and their roles in the body. This prepares them for the next unit, Keeping healthy, where they will deepen their understanding of how lifestyle choices, including diet and exercise, affect long-term health and help prevent illness.

Lessons in unit

1. Making or finding food
2. Types of food
3. Amounts of food
4. Nutrition from food
5. Fats in food: plan and do (non-statutory)
6. Fats in food: review (non-statutory)
7. Nutrient-rich meal: planning (non-statutory)
8. Nutrient-rich meal: doing and reviewing (non-statutory)
9. Different diets for different people
10. Sustainable sources of food (non-statutory)
11. Local food (non-statutory Climate Change & Sustainability)
12. Food miles (non-statutory)

Prior knowledge requirements

- Describe the basic needs of animals, including humans, for survival (water, food and air)
- Describe the importance for humans to eat the right amounts of different types of food

5. What plants do and what they need

Year 3: Biology

Go to unit resources

Threads

- BQ01 Biology: What are living things and what are they made of?
- BQ02 Biology: How do living things grow and reproduce?

Unit description

This unit explores the functions of different parts of flowering plants, including roots, stems, leaves, and flowers. It investigates plant requirements for growth and the role of flowers in pollination, seed formation, and dispersal. Emphasis is on practical enquiries, and data presentation.

Why this, why now?

This unit builds on pupils' prior learning from Growing plants, where they explored how seeds and bulbs grow into mature plants and what they need to thrive. In What plants do and what they need, pupils will examine the specific functions of different plant parts, such as roots, stems, and leaves, and how they support the plant's growth and survival. This prepares them for the next unit, Reproduction and life cycles: plants, where they will explore how plants reproduce and go through life cycles, deepening their understanding of plant biology.

Lessons in unit

1. What plants need: plan
2. What plants need: do
3. Nutrients and fertilisers for plants (non-statutory)
4. The function of leaves
5. The function of roots
6. Plants without roots
7. How water is transported in plants
8. What plants need: review
9. The function of flowers
10. The parts of a flower
11. Pollination
12. Seed formation and seed dispersal
13. Life cycle of a flowering plant
14. What plants need: final review
15. Comparing what plants need in different habitats

Prior knowledge requirements

- Identify and name a variety of common wild and garden plants, including evergreen and deciduous trees
- Identify and describe the basic structure of a variety of common plants, including trees
- Observe and describe how seeds and bulbs grow into mature plants
- Find out and describe how plants need water, light and a suitable temperature to grow

6. Introduction to light and shadows

Year 3: Chemistry, Physics

Go to unit resources

Threads

- BQ10 Physics: Why do materials have different properties?
- BQ12 Physics: How do we see, hear and communicate?

Unit description

This unit explores the nature of light, recognising that light is needed to see and that dark is the absence of light. It covers how light reflects and shadow formation. The unit emphasises practical tests, observations, accurate measuring, and using evidence to support findings.

Why this, why now?

This unit builds on pupils' prior learning from Everyday materials, where they explored the properties of different materials. In Introduction to light and shadows, pupils will learn how light interacts with materials to create shadows and how light is essential for seeing. This prepares them for the next unit, Light and how it travels, where they will deepen their understanding by exploring how light moves in straight lines, reflects, and refracts, reinforcing key concepts about light and vision.

Lessons in unit

1. Light and seeing
2. Light sources
3. Protecting our eyes from the Sun: plan
4. Protecting our eyes from the Sun: do and review
5. Opaque, transparent and translucent
6. Making shadows
7. Shadow size: plan
8. Shadow size: do
9. Shadow size: review
10. Reflected light: plan
11. Reflected light: do and review
12. Light pollution (non-statutory)

Prior knowledge requirements

- Plants need light in order to grow and stay healthy
- Some materials let light through (are transparent) and some do not (are opaque).
- The Sun gives us life and day length can vary throughout the year
- Shadows can be observed in everyday experiences

Year 4 units

View interactive sequence online

1 **Introduction to the human digestive system**	**2** **Introduction to states of matter and changing states**	**3** **Simple electrical circuits**
4 **Introduction to sound**	**5** **Living things and the environment**	**6** **More about food chains**

1. Introduction to the human digestive system

Year 4: Biology

Go to unit resources

Threads

- BQ05 Biology: How do living things stay healthy?

Unit description

This unit covers the basic functions of the human digestive system and identifies different types of teeth and their functions. It focuses on asking questions, gathering and presenting data, recording findings with diagrams and charts, and reporting results through written and oral presentations.

Why this, why now?

This unit builds on pupils' prior learning from Human body parts, where they learned to identify basic body parts and their functions. In Introduction to the human digestive system, pupils will explore how the body processes food to extract nutrients. This prepares them for the next unit, The human circulatory system, where they will deepen their understanding by learning how nutrients and oxygen are transported around the body through the blood, reinforcing the connection between body systems.

Lessons in unit

1. Types of teeth
2. The functions of teeth
3. Different teeth for different food
4. Carnivore, herbivore and omnivore teeth (non-statutory)
5. Looking after our teeth: plan and do (non-statutory)
6. Looking after our teeth: review (non-statutory)
7. Comparing toothpaste (non-statutory)
8. The human digestive system
9. More about the journey of food
10. Presenting the human digestive system

Prior knowledge requirements

- Identify, name, draw and label the basic parts of the human body
- Say which part of the human body is associated with each sense
- Identify that humans and some other animals have skeletons and muscles for support, protection and movement
- Find out about and describe the basic needs of animals, including humans, for survival (water, food, air)
- Describe the importance for humans of eating the right amounts of different types of food
- Identify that animals, including humans, need the right types and amounts of nutrition
- Identify that animals including humans cannot make their own food; they get nutrition from what they eat

- Identify and name a variety of common animals that are carnivores, herbivores and omnivores

2. Introduction to states of matter and changing states

Year 4: Chemistry, Physics

Go to unit resources

Threads

- BQ07 Chemistry: What are things made of?
- BQ08 Chemistry: How can substances be made and changed?
- BQ10 Physics: Why do materials have different properties?
- BQ15 How can we live sustainably to protect Earth for a better future?

Unit description

This unit explores the properties of solids, liquids, and gases, and how materials change state when heated or cooled. It covers evaporation, condensation, and the water cycle, with a focus on practical enquiries, careful observations, accurate measurements, and presenting findings.

Why this, why now?

This unit builds on pupils' prior learning from Everyday materials, where they explored the properties of common materials. In Introduction to states of matter and changing states, pupils will learn about solids, liquids, and gases, and how materials change state when heated or cooled. This prepares them for the next unit, Properties, changes and separating materials, where they will explore how different materials can be changed, separated, and classified based on their properties, further deepening their understanding of material behaviour.

Lessons in unit

1. Properties of solids, liquids and gases
2. Comparing and grouping solids, liquids and gases
3. Changing state: solid to liquid
4. Changing state: liquid to solid
5. Melting ice caps and glaciers (non statutory - Climate Change & Sustainability)
6. Everyday examples of changing state: solids and liquids (non-statutory)
7. Thermometers and data loggers
8. Melting temperatures: plan
9. Melting temperatures: do and review
10. Melting temperatures: research
11. Changing state: liquid to gas
12. Changing state: gas to liquid
13. Everyday examples of evaporation and condensation (non-statutory)
14. Evaporation and condensation in the water cycle
15. Temperature and evaporation: plan
16. Temperature and evaporation: do and review

Prior knowledge requirements

- Identify and name a variety of everyday materials
- Describe the simple properties of everyday materials
- Compare and group together everyday materials on the basis of their simple physical properties

3. Simple electrical circuits

Year 4: Physics

Go to unit resources

Threads

- BQ12 Physics: How do we see, hear and communicate?
- BQ13 Physics: How do electricity and magnetism work?

Unit description

This unit covers constructing simple series electrical circuits, identifying parts like cells, wires, and switches, and recognising conductors and insulators. It also explores how circuits work with lamps and switches. The emphasis is on practical enquiries, making observations, and presenting data.

Why this, why now?

This unit builds on pupils' prior learning from Everyday materials, where they explored the properties of materials and their uses. In Simple electrical circuits, pupils will learn how to construct basic circuits and understand how electricity flows through components like wires and bulbs. This prepares them for the next unit, Changing circuits, where they will explore more complex circuit designs, including the effects of adding switches and multiple components, deepening their understanding of how electrical systems work.

Lessons in unit

1. Electrical appliances
2. Electrical appliances of the future (non-statutory)
3. Components in a simple circuit
4. Building simple circuits
5. Troubleshooting problems with circuits
6. Switches
7. Electrical conductors and insulators
8. Electrical conductors: testing
9. Generating and transporting electricity (non-statutory)
10. Working with electricity

Prior knowledge requirements

- Distinguish between the object and the material from which it is made
- Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock
- Identify and compare the suitability of a variety of everyday materials for particular uses

4. Introduction to sound

Year 4: Chemistry, Physics

Go to unit resources

Threads

- BQ10 Physics: Why do materials have different properties?
- BQ12 Physics: How do we see, hear and communicate?

Unit description

This unit explores how sounds are made through vibrations, how they travel through mediums, and how pitch and volume relate to vibration strength. It also covers why sounds get fainter with distance. The emphasis is on practical enquiries, observations, and using results to draw conclusions.

Why this, why now?

This unit introduces pupils to the big question, How do we see, hear and communicate?, by focusing on Introduction to sound. Pupils will learn how sound is produced, how it travels through different mediums, and how we hear it. This foundational knowledge prepares them for the next unit, Sound, light and vision, where they will explore the properties of both sound and light, helping them deepen their understanding of how we perceive and interact with the world through these senses.

Lessons in unit

1. How sounds are made
2. How vibrations travel
3. Vibrations and solid materials
4. Louder and quieter sounds
5. Measuring the volume of sounds
6. Sound insulation
7. Noise pollution: acceptable decibel levels (non-statutory)
8. Distance from sounds: plan
9. Distance from sounds: do and review
10. Higher and lower sounds
11. Changing the pitch of sounds
12. Musical instruments and pitch

Prior knowledge requirements

- Recognise sounds from different sound sources through everyday experiences

5. Living things and the environment

Year 4: Biology

Go to unit resources

Threads

- BQ03 Biology: How do living things live together in their environments?
- BQ04 Biology: Why are there similarities and differences between living things?
- BQ15 How can we live sustainably to protect Earth for a better future?

Unit description

This unit focuses on grouping living things and using classification keys to identify and name them in various environments. It explores how environmental changes can pose dangers to organisms. Emphasis is on asking questions, collecting data, and using evidence to support conclusions.

Why this, why now?

This unit builds on pupils' prior learning from Living things and where they live, where they explored how different habitats support various plants and animals. In Living things and the environment, pupils will examine how environmental changes can impact living organisms and their habitats. This prepares them for the next unit, Why we group and classify living things, where they will learn how to classify organisms based on characteristics, deepening their understanding of biodiversity and the relationships between species.

Lessons in unit

1. Introducing observable characteristics
2. Grouping animals
3. Grouping plants
4. Identifying living things (non-statutory)
5. Classification keys
6. Classification keys to identify animals
7. Classification keys to identify plants
8. Environments and seasonal changes
9. Extreme weather: flooding (non-statutory Climate Change & Sustainability)
10. Extreme weather: heatwaves and wild fires (non-statutory CC & Sustainability)
11. Changing environments: land development and deforestation
12. Changing environments: waste creation and pollution
13. Animals in danger
14. Protecting animals in decline (non-statutory Climate Change & Sustainability)
15. Changing environments: plants in danger
16. Changing environments: nature reserves
17. Changing environments: reforestation and recycling
18. Environmental changes in the news (non-statutory)
19. How scientists communicate with the public (non-statutory)

Prior knowledge requirements

- Animals and plants can be classified into groups based on their features
- Animals are often grouped into: mammals, fish, birds, amphibians and reptiles

- Animals can be classified into groups according to what they eat
- Everything can be classified into groups according to whether they are alive, dead or never alive
- Plants can be classified into groups depending on where they are found

6. More about food chains

Year 4: Biology

Go to unit resources

Threads

- BQ03 Biology: How do living things live together in their environments?

Unit description

This unit involves constructing and interpreting food chains and identifying producers, predators, and prey. It focuses on asking questions, gathering and presenting data, recording findings with diagrams and charts, and using scientific evidence to answer questions and support findings.

Why this, why now?

This unit builds on pupils' prior learning from Introduction to food chains, where they explored the basic connections between producers, prey, and predators. In More about food chains, pupils will deepen their understanding by looking at more complex food chains and ecosystems, exploring how energy flows through different levels. This prepares them for the next unit, Why we group and classify living things, where they will learn to classify organisms, helping them understand the roles different species play within ecosystems.

Lessons in unit

1. Simple food chains
2. Producers in a food chain
3. Consumers in a food chain
4. Predators and prey in a food chain
5. Creating food chains
6. Comparing different food chains
7. Presenting food chains
8. Changes in food chains (non-statutory)
9. Dangers to food chains (non-statutory)
10. Protecting food chains

Prior knowledge requirements

- Describe how animals obtain their food from plants and other animals
- Use the idea of a simple food chain to identify and name different sources of food

Year 5 units

View interactive sequence online

1 **Properties, changes and separating materials**	**2** **Forces including simple machines**	**3** **Earth, Sun and Moon**
4 **Reproduction and life cycles: plants**	**5** **Reproduction and life cycles: animals**	**6** **Human development**

1. Properties, changes and separating materials

Year 5: Chemistry, Physics

Go to unit resources

Threads

- BQ06 Chemistry: How do we explain how substances behave?
- BQ07 Chemistry: What are things made of?
- BQ10 Physics: Why do materials have different properties?
- BQ15 How can we live sustainably to protect Earth for a better future?

Unit description

This unit explores the properties of everyday materials, including hardness, solubility, and conductivity. It covers reversible changes like dissolving and mixing, and irreversible changes such as burning. Emphasis is on scientific enquiries, data recording, and presenting findings with evidence.

Why this, why now?

This unit builds on pupils' prior learning from Everyday materials, where they explored the properties and uses of common materials. In Properties, changes and separating materials, pupils will investigate how materials can be changed, separated, and classified based on their properties, such as hardness, solubility, and conductivity. This prepares them for the next unit, Materials, where they will delve deeper into the processes of separating mixtures and understanding more advanced material properties and changes.

Lessons in unit

1. Properties of materials
2. Uses of everyday materials
3. Thermal insulators: plan
4. Thermal insulators: do and review
5. Everyday uses of thermal insulators
6. Insulating our homes and schools (non-statutory Climate Change & Sustainability)
7. Soluble and insoluble
8. Recovering insoluble solids
9. Providing safe drinking water (non-statutory Climate Change & Sustainability)
10. Separating soluble solids from solutions
11. Removing salt from seawater (non-statutory)
12. Reversible changes of state
13. More reversible changes
14. Burning: an irreversible change
15. Burning plants as fuel (non-statutory Climate Change & Sustainability)
16. Greenhouse gases (non-statutory Climate Change & Sustainability)
17. Bioplastics (non-statutory Climate Change & Sustainability)
18. Rusting: an irreversible change
19. More irreversible changes
20. How scientists work

Prior knowledge requirements

- Distinguish between an object and the material from which it is made
- Identify and name a variety of everyday materials
- Describe the simple physical properties of everyday materials

- Compare and group together a variety of everyday materials on the basis of their simple physical properties
- Identify and compare the suitability of a variety of everyday materials for particular uses
- Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties
- 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
- Compare and group materials together, according to whether they are solids, liquids or gases
- Observe that some materials change state when they are heated and cooled
- Recognise some common electrical conductors and insulators, and associate metals with being good conductors

2. Forces including simple machines

Year 5: Physics

Go to unit resources

Threads

- BQ11 Physics: How do forces make things happen?

Unit description

This unit covers the effects of gravity, air resistance, water resistance, and friction on objects. It explores how mechanisms like levers, pulleys, and gears magnify forces. Emphasis is on taking precise measurements, recording complex data, and presenting findings.

Why this, why now?

This unit builds on pupils' prior learning from Simple forces including magnets, where they explored basic forces such as pushes, pulls, and magnetism. In Forces including simple machines, pupils will deepen their understanding by investigating how levers, pulleys, and other simple machines make work easier by applying forces. This prepares them for the next unit, Forces, where they will further explore the interaction of forces, including contact and non-contact forces, and how they affect the motion of objects.

Lessons in unit

1. Introduction to gravity
2. Pushes and pulls
3. Friction: plan
4. Friction: do and review
5. Air resistance: plan
6. Air resistance: do and review
7. Water resistance: plan
8. Water resistance: do and review
9. How levers can help us
10. How pulleys can help us
11. How gears can help us
12. Simple machines
13. Design and development of machines

Prior knowledge requirements

- Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching
- Compare how things move on different surfaces
- Notice that some forces need contact between two objects, but magnetic force can act at a distance
- Observe how magnets attract or repel each other, and attract some materials and not others

3. Earth, Sun and Moon

Year 5: Physics

Go to unit resources

Threads

- BQ14 Physics: How does the Earth fit into the Universe?

Unit description

This unit covers the movement of the Earth, moon, and planets, describing them as spherical bodies. It explains Earth's rotation, causing day and night, and the sun's apparent movement. Emphasis is on recording complex data, presenting findings, and evaluating scientific evidence.

Why this, why now?

This unit builds on pupils' prior learning from Seasonal changes: autumn and winter, where they explored how Earth's movement causes seasonal changes. In Earth, Sun and Moon, pupils will learn how the Earth's rotation creates day and night, and how its orbit around the Sun leads to the seasons. This prepares them for the next unit, Our solar system and beyond, where they will further explore the planets, moons, and other features of our solar system, expanding their understanding of space and the universe.

Lessons in unit

1. The shape of Earth
2. The shape of objects in space
3. Observing the Moon
4. The relative sizes of the Earth, Sun and Moon (non-statutory)
5. More about the Sun (non-statutory)
6. Why we have day and night
7. Why the Sun appears to move across the sky
8. The planets in our solar system (non-statutory)
9. The movement of the planets around the Sun
10. Scientific theories from the past (non-statutory)
11. How we see the Moon from Earth
12. The movement of the Moon

Prior knowledge requirements

- Observe how day length varies
- Recognise that light from the Sun can be dangerous and that there are ways to protect their eyes

4. Reproduction and life cycles: plants

Year 5: Biology

Go to unit resources

Threads

- BQ01 Biology: What are living things and what are they made of?
- BQ02 Biology: How do living things grow and reproduce?
- BQ04 Biology: Why are there similarities and differences between living things?

Unit description

his unit explores the life process of reproduction in plants and animals. It focuses on planning scientific enquiries, measuring with precision, recording complex data, and using test results to make predictions. Emphasis is on presenting findings, and evaluating scientific evidence.

Why this, why now?

This unit builds on pupils' prior learning from What plants do and what they need, where they explored the functions of different plant parts and how plants grow and survive. In Reproduction and life cycles: plants, pupils will learn how plants reproduce and go through life cycles, from seed to mature plant. This prepares them for the next unit, Evolution and inheritance, where they will explore how plants and other organisms evolve over time and pass on traits, deepening their understanding of biological changes across generations.

Lessons in unit

1. Asexual reproduction in plants
2. Plants from cuttings
3. Parts of a flowering plant and what they do
4. Pollinators (non-statutory)
5. Dangers to pollinators (non-statutory)
6. Selective breeding of plants (non-statutory)
7. Conservation of plants using seed banks (non-statutory)
8. Plant life cycles
9. Plant reproduction from cuttings

Prior knowledge requirements

- Identify and describe the basic structure of a variety of common flowering plants
- Identify and describe the functions of different parts of flowering plants
- Explore the part flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal

5. Reproduction and life cycles: animals

Year 5: Biology

Go to unit resources

Threads

- BQ01 Biology: What are living things and what are they made of?
- BQ02 Biology: How do living things grow and reproduce?
- BQ04 Biology: Why are there similarities and differences between living things?

Unit description

This unit explores the life cycles of mammals, amphibians, insects, and birds, and the reproduction process in plants and animals. It focuses on recording data, presenting findings with conclusions, and evaluating scientific evidence to support or refute ideas in various presentation formats.

Why this, why now?

This unit builds on pupils' prior learning from New life, where they explored how animals, including humans, have offspring that grow into adults. In Reproduction and life cycles: animals, pupils will study the life cycles of various animals, including mammals, amphibians, and birds, and understand the stages of growth and reproduction. This prepares them for the next unit, Evolution and inheritance, where they will explore how animals evolve over time and pass on traits, linking reproduction to the broader concepts of inheritance and evolution.

Lessons in unit

1. Animal groups
2. Insects (non-statutory)
3. Mammal life cycles
4. Bird life cycles
5. Comparing the life cycles of mammals and birds
6. Amphibian life cycles
7. Insect life cycles
8. Comparing the life cycles of amphibians and insects
9. Endangered animals and life cycles (non-statutory)
10. More about endangered animals (non-statutory)
11. Animal gestation periods

Prior knowledge requirements

- Notice that animals, including humans, have offspring which grow into adults

6. Human development

Year 5: Biology

Go to unit resources

Threads

- BQ02 Biology: How do living things grow and reproduce?

Unit description

This unit describes the changes humans undergo from birth to old age. It involves planning scientific enquiries, measuring accurately, recording complex data, and presenting findings. Emphasis is on identifying evidence to support or refute ideas, drawing conclusions, and explaining results.

Why this, why now?

This unit builds on pupils' prior learning from New life, where they explored how animals, including humans, have offspring that grow into adults. In Human development, pupils will study the stages of growth and development in humans, from birth to old age, learning about the physical and emotional changes that occur. This prepares them for the next unit, Evolution and inheritance, where they will explore how traits are passed from one generation to the next, linking human development to the broader concepts of inheritance and evolution.

Lessons in unit

1. Changes in humans before and after birth
2. Changes in childhood
3. Changes during puberty
4. Changes in adulthood
5. Changes in old age
6. More about human development
7. Finding out about human height
8. Representing data about human height
9. Analysing data about human height
10. Life expectancy (non-statutory)
11. The impact of population growth (non-statutory)

Prior knowledge requirements

- Identify and name the basic parts of the human body
- Know which part of the human body is associated with each sense
- Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene
- Notice that animals, including humans, have offspring which grow into adults

Year 6 units

View interactive sequence online

1 **The human circulatory system**	**2** **Changing circuits**	**3** **Keeping healthy**
4 **Why we group and classify living things**	**5** **Evolution and inheritance**	**6** **Light and how it travels**
7 **Materials (non-statutory)**	**8** **Climate change and sustainability (non-statutory)**	

1. The human circulatory system

Year 6: Biology

Go to unit resources

Threads

- BQ01 Biology: What are living things and what are they made of?
- BQ05 Biology: How do living things stay healthy?

Unit description

This unit explores the human circulatory system, identifying the heart, blood vessels, and blood functions. It examines how diet, exercise, drugs, and lifestyle affect body function and details nutrient and water transport in animals. Emphasis is on data recording and presenting findings.

Why this, why now?

This unit builds on pupils' prior learning from Healthy eating, where they explored how nutrition supports overall health and body function. In The human circulatory system, pupils will learn how the heart, blood vessels, and blood work together to transport oxygen and nutrients throughout the body. This prepares them for the next unit, Breathing and respiration, where they will explore how the respiratory system provides oxygen to the blood and removes carbon dioxide, deepening their understanding of how these systems interact to sustain life.

Lessons in unit

1. Function of the heart
2. Function of blood
3. Function of blood vessels
4. How nutrients and water are transported within humans
5. The circulatory system in humans: plan
6. Circulatory system: do and review
7. The use of animal hearts in humans (non-statutory)

Prior knowledge requirements

- Identify, name, draw and label the basic parts of the human body
- Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene
- Identify that animals, including humans, need the right types and amount of nutrition; they get nutrition from what they eat
- Identify that humans and some other animals have skeletons and muscles for support, protection and movement
- Describe the simple functions of the basic parts of the digestive system in humans

2. Changing circuits

Year 6: Physics

Go to unit resources

Threads

- BQ12 Physics: How do we see, hear and communicate?
- BQ13 Physics: How do electricity and magnetism work?

Unit description

This unit explores how circuit components like lamps and buzzers function, including the effect of cell number and voltage. It covers using symbols in circuit diagrams, planning scientific enquiries, taking precise measurements, recording data, and presenting findings with evidence and conclusions.

Why this, why now?

This unit builds on pupils' prior learning from Simple electrical circuits, where they explored the basics of how electricity flows through components like wires, bulbs, and batteries. In Changing circuits, pupils will deepen their understanding by learning how adding switches or altering components can change the flow of electricity. This prepares them for the next unit, Series circuits, where they will explore how circuits are connected in series, and how this affects the distribution of electricity and the performance of the components.

Lessons in unit

1. Components and simple circuits
2. Circuit symbols and diagrams
3. Electrical discoveries and inventions (non-statutory)
4. Investigating voltage: plan
5. Investigating voltage: do and review
6. Variables in electric circuits: plan
7. Variables in electric circuits: do and review
8. Changing the volume of buzzers
9. The position of switches: open and closed
10. Choosing and using conductors and insulators (non-statutory)
11. How electrical insulators keep us safe (non-statutory)
12. Electrical careers
13. Electrical sensors: design (non-statutory)
14. Electrical sensors: make and review (non-statutory)
15. Debating the use of electric cars (non-statutory)
16. Sustainable sources of electricity (non-statutory)

Prior knowledge requirements

- Identify common appliances that run on electricity
- Construct a simple series electrical circuit, identifying and naming its basic parts
- 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 electrical conductors and insulators
- Associate metals with being good electrical conductors

3. Keeping healthy

Year 6: Biology

Go to unit resources

Threads

- BQ05 Biology: How do living things stay healthy?
- BQ15 How can we live sustainably to protect Earth for a better future?

Unit description

This unit examines how diet, exercise, drugs, and lifestyle impact body function. It focuses on planning scientific enquiries, controlling variables, taking precise measurements, and recording complex data. Emphasis is on presenting findings, drawing conclusions, and evaluating scientific evidence.

Why this, why now?

This unit builds on pupils' prior learning from Healthy me, where they explored the importance of exercise, balanced nutrition, and hygiene for maintaining good health. In Keeping healthy, pupils will deepen their understanding by learning how lifestyle choices, such as diet and physical activity, affect long-term health and well-being. This prepares them for the next unit, Diet and exercise, where they will explore the specific impacts of nutrition and exercise on the body, reinforcing how healthy habits contribute to overall fitness and health.

Lessons in unit

1. The impact of a balanced diet
2. Healthy and sustainable proteins (non-statutory Climate Change & Sustainability)
3. Mushrooms and mycoprotein (non-statutory Climate Change & Sustainability)
4. Healthy heart rate
5. Heart recovery time after exercise
6. Healthy hearts
7. Legal and illegal drugs
8. The impact of smoking
9. The impact of alcohol
10. Monitoring and improving lifestyle choices
11. Evidence about healthy lifestyle: do and review (non-statutory)
12. Evidence about healthy lifestyle: presentation (non-statutory)

Prior knowledge requirements

- Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene
- Identify that animals, including humans, need the right types and amount of nutrition
- Identify that animals including humans cannot make their own food; they get nutrition from what they eat

4. Why we group and classify living things

Year 6: Biology

Go to unit resources

Threads

- BQ01 Biology: What are living things and what are they made of?
- BQ02 Biology: How do living things grow and reproduce?
- BQ04 Biology: Why are there similarities and differences between living things?
- BQ15 How can we live sustainably to protect Earth for a better future?

Unit description

This unit covers the classification of living things, including micro-organisms, plants, and animals, based on observable characteristics. It explores reasons for classification and focuses on planning scientific enquiries, recording data, presenting findings, and evaluating scientific evidence.

Why this, why now?

This unit builds on pupils' prior learning from Living things and the environment, where they explored how organisms interact with their surroundings. In Why we group and classify living things, pupils will learn how scientists classify organisms based on shared characteristics. This prepares them for the next unit, Species and classification (differences between species), where they will explore the variations between species and how these differences help in identifying and understanding the diversity of life.

Lessons in unit

1. Comparing characteristics of living things
2. How and why we group animals
3. How and why we group plants
4. Micro-organisms are living things
5. Grouping micro-organisms
6. Micro-organisms living on food: plan and do (non-statutory)
7. The 5 Rs (non-statutory Climate Change & Sustainability)
8. Microorganisms that help us (non-statutory)
9. Growing yeast: plan (non-statutory)
10. Growing yeast: do and review (non-statutory)
11. Micro-organisms living on food: review (non-statutory)
12. Carl Linnaeus and classification
13. Discovering and naming new species

Prior knowledge requirements

- Recognise that living things can be grouped in a variety of ways
- Explore and use classification keys to help group, identify and name a variety of living things in the local and wider environment

5. Evolution and inheritance

Year 6: Biology

Go to unit resources

Threads

- BQ02 Biology: How do living things grow and reproduce?
- BQ03 Biology: How do living things live together in their environments?
- BQ04 Biology: Why are there similarities and differences between living things?

Unit description

This unit explores how living things have changed over time, using fossils as evidence of past life. It covers how offspring vary from parents and how adaptation leads to evolution. Emphasis is on planning scientific enquiries, recording data, and evaluating scientific evidence.

Why this, why now?

This unit builds on pupils' prior learning from New life, where they explored how animals, including humans, reproduce and grow. In Evolution and inheritance, pupils will learn how traits are passed down through generations and how species evolve over time through adaptation and natural selection. This prepares them for the next unit, Heredity and DNA, where they will explore the genetic mechanisms that underpin inheritance, deepening their understanding of how DNA carries the information responsible for the traits of living organisms.

Lessons in unit

1. Where fossils are found (non-statutory)
2. What fossils can tell us about the past
3. How living things have changed over time
4. Human skulls: using evidence from the past (non-statutory)
5. Offspring: similar but not identical
6. Family trees (non-statutory)
7. Inherited characteristics
8. Animal adaptations
9. Charles Darwin and finches
10. Plant adaptations
11. More about plant adaptations
12. The survival of the fittest
13. Evolution: evidence
14. Evolution: presentation

Prior knowledge requirements

- Describe in simple terms how fossils are formed
- Notice that animals, including humans, have offspring which grow into adults
- Identify that most living things live in habitats to which they are suited
- Describe how habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other

6. Light and how it travels

Year 6: Chemistry, Physics

Go to unit resources

Threads

- BQ10 Physics: Why do materials have different properties?
- BQ12 Physics: How do we see, hear and communicate?

Unit description

This unit explores how light travels in straight lines, explaining how we see objects and why shadows form the shape of the object casting them. It focuses on planning scientific enquiries, taking precise measurements, making predictions, and evaluating evidence to present findings.

Why this, why now?

This unit builds on pupils' prior learning from Introduction to light and shadows, where they explored how light creates shadows and how it is essential for seeing. In Light and how it travels, pupils will deepen their understanding by learning how light moves in straight lines, reflects, and refracts. This prepares them for the next unit, Sound, light and vision, where they will further explore how light and sound work together to allow us to see and hear, reinforcing the concepts of wave properties and sensory perception.

Lessons in unit

1. How light travels
2. Light sources and light reflectors (non-statutory)
3. Light enters our eyes
4. Reflected light
5. Changing the direction of light
6. Measuring reflected light: plan
7. Measuring reflected light: do and review
8. How shadows form
9. Shadow shapes investigation
10. The position of shadows (non-statutory)
11. Multiple shadows

Prior knowledge requirements

- Recognise that they need light in order to see things and that dark is the absence of light
- Notice that light is reflected from surfaces
- Recognise that light from the Sun can be dangerous and that there are ways to protect their eyes
- Recognise that shadows are formed when the light from a light source is blocked by an opaque object
- Find patterns in the way that the size of shadows change

7. Materials (non-statutory)

Year 6: Chemistry

Go to unit resources

Threads

- BQ07 Chemistry: What are things made of?
- BQ08 Chemistry: How can substances be made and changed?

Unit description

This unit covers separating materials using techniques such as filtering and evaporation. It focuses on planning scientific enquiries, recognising and controlling variables, taking accurate measurements, recording complex data, and presenting findings with conclusions, and explanations.

Why this, why now?

This unit builds on pupils' prior learning from Properties, changes and separating materials, where they explored the properties of materials and how they can be changed and separated. In Materials, pupils will delve deeper into methods of separating materials, such as filtering and evaporation. This prepares them for the next unit, Solutions, where they will apply their understanding to explore how different materials dissolve and interact in various mixtures, reinforcing their knowledge of material properties and solutions.

Lessons in unit

1. Comparing rock salt with table salt (non-statutory)
2. The effect of adding salt to ice: plan (non-statutory)
3. The effect of adding salt to ice: do and review (non-statutory)

Prior knowledge requirements

- Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution
- Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating
- 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

8. Climate change and sustainability (non-statutory)

Year 6: Biology, Chemistry, Physics

Go to unit resources

Threads

- BQ05 Biology: How do living things stay healthy?
- BQ09 Chemistry: How can we explain changes in the air, land and oceans?
- BQ10 Physics: Why do materials have different properties?
- BQ15 How can we live sustainably to protect Earth for a better future?

Unit description

This unit examines our climate and the factors affecting it. Emphasis is on using data, taking precise measurements, recording data, and presenting findings.

Why this, why now?

This unit builds on pupils' prior learning from Properties, changes and separating materials, where they explored how materials can change state and be separated based on their properties. In Climate change and sustainability, pupils will learn about the impact of human activities on the climate and explore sustainable practices to reduce environmental damage. This prepares them for the next unit, Solid, liquid, gas states and changes of state, where they will study how matter changes between these states and the role of energy in these processes.

Lessons in unit

1. Fossil fuels (non-statutory)
2. Reducing air pollution (non-statutory)
3. What carbon is (non-statutory)
4. Reducing our carbon footprint (non-statutory)
5. Carbon capture (non-statutory)
6. The Sun as an energy source (non-statutory)
7. The wind as an energy source (non-statutory)
8. Water as an energy source (non-statutory)

Prior knowledge requirements

- can describe in simple terms how fossils are formed when things that have lived are trapped within rock
- can recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago
- can 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
- can use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through evaporating
- can construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers

Threads in science

See how to use threads ↑

BQ01 Biology: What are living things and what are they made of?

BQ02 Biology: How do living things grow and reproduce?

BQ03 Biology: How do living things live together in their environments?

BQ04 Biology: Why are there similarities and differences between living things?

BQ05 Biology: How do living things stay healthy?

BQ06 Chemistry: How do we explain how substances behave?

BQ07 Chemistry: What are things made of?

BQ08 Chemistry: How can substances be made and changed?

BQ09 Chemistry: How can we explain changes in the air, land and oceans?

BQ11 Physics: How do forces make things happen?

BQ12 Physics: How do we see, hear and communicate?

BQ13 Physics: How do electricity and magnetism work?

BQ14 Physics: How does the Earth fit into the Universe?

BQ15 How can we live sustainably to protect Earth for a better future?

BQ10 Physics: Why do materials have different properties?

Thread, **'BQ01 Biology: What are living things and what are they made of?'**

Year 1

- **Unit 1,** 'Naming and grouping animals'
- **Unit 3,** 'Human body parts'
- **Unit 4,** 'Identifying plants and their basic parts'

Year 2

- **Unit 5,** 'Living things and where they live'

Year 3

- **Unit 2,** 'Introduction to the human skeleton and muscles'
- **Unit 5,** 'What plants do and what they need'

Year 5

- **Unit 4,** 'Reproduction and life cycles: plants'
- **Unit 5,** 'Reproduction and life cycles: animals'

Year 6

- **Unit 1,** 'The human circulatory system'
- **Unit 4,** 'Why we group and classify living things'

Thread, **'BQ02 Biology: How do living things grow and reproduce?'**

Year 2

- **Unit 2,** 'Growing plants'
- **Unit 3,** 'New life'

Year 3

- **Unit 4,** 'Healthy eating'
- **Unit 5,** 'What plants do and what they need'

Year 5

- **Unit 4,** 'Reproduction and life cycles: plants'
- **Unit 5,** 'Reproduction and life cycles: animals'
- **Unit 6,** 'Human development'

Year 6

- **Unit 4,** 'Why we group and classify living things'
- **Unit 5,** 'Evolution and inheritance'

Thread, **'BQ03 Biology: How do living things live together in their environments?'**

Year 1

- **Unit 2,** 'Seasonal changes: autumn and winter'
- **Unit 5,** 'Seasonal changes: spring and summer'

Year 2

- **Unit 4,** 'Introduction to food chains'
- **Unit 5,** 'Living things and where they live'

Year 3

- **Unit 4,** 'Healthy eating'

Year 4

- **Unit 5,** 'Living things and the environment'
- **Unit 6,** 'More about food chains'

Year 6

- **Unit 5,** 'Evolution and inheritance'

Thread, **'BQ04 Biology: Why are there similarities and differences between living things?'**

Year 1

- **Unit 1,** 'Naming and grouping animals'
- **Unit 3,** 'Human body parts'
- **Unit 4,** 'Identifying plants and their basic parts'

Year 4

- **Unit 5,** 'Living things and the environment'

Year 5

- **Unit 4,** 'Reproduction and life cycles: plants'
- **Unit 5,** 'Reproduction and life cycles: animals'

Year 6

- **Unit 4,** 'Why we group and classify living things'
- **Unit 5,** 'Evolution and inheritance'

Thread, **'BQ05 Biology: How do living things stay healthy?'**

Year 2

- **Unit 2,** 'Growing plants'
- **Unit 3,** 'New life'
- **Unit 6,** 'Healthy me'

Year 3

- **Unit 4,** 'Healthy eating'

Year 4

- **Unit 1,** 'Introduction to the human digestive system'

Year 6

- **Unit 1,** 'The human circulatory system'
- **Unit 3,** 'Keeping healthy'
- **Unit 8,** 'Climate change and sustainability (non-statutory)'

Thread, **'BQ06 Chemistry: How do we explain how substances behave?'**

Year 1

- **Unit 6,** 'Everyday materials'

Year 5

- **Unit 1,** 'Properties, changes and separating materials'

Thread, **'BQ07 Chemistry: What are things made of?'**

Year 1

- **Unit 6,** 'Everyday materials'

Year 2

- **Unit 1,** 'Uses of everyday materials'

Year 3

- **Unit 1,** 'Rocks and soils'

Year 4

- **Unit 2,** 'Introduction to states of matter and changing states'

Year 5

- **Unit 1,** 'Properties, changes and separating materials'

Year 6

- **Unit 7,** 'Materials (non-statutory)'

Thread, **'BQ08 Chemistry: How can substances be made and changed?'**

Year 2

- **Unit 1,** 'Uses of everyday materials'

Year 4

- **Unit 2,** 'Introduction to states of matter and changing states'

Year 6

- **Unit 7,** 'Materials (non-statutory)'

Thread, **'BQ09 Chemistry: How can we explain changes in the air, land and oceans?'**

Year 3

- **Unit 1,** 'Rocks and soils'

Year 6

- **Unit 8,** 'Climate change and sustainability (non-statutory)'

Thread, **'BQ11 Physics: How do forces make things happen?'**

Year 3

- **Unit 3,** 'Simple forces including magnets'

Year 5

- **Unit 2,** 'Forces including simple machines'

Thread, **'BQ12 Physics: How do we see, hear and communicate?'**

Year 1

- **Unit 2,** 'Seasonal changes: autumn and winter'
- **Unit 3,** 'Human body parts'
- **Unit 5,** 'Seasonal changes: spring and summer'

Year 3

- **Unit 6,** 'Introduction to light and shadows'

Year 4

- **Unit 3,** 'Simple electrical circuits'
- **Unit 4,** 'Introduction to sound'

Year 6

- **Unit 2,** 'Changing circuits'
- **Unit 6,** 'Light and how it travels'

Thread, **'BQ13 Physics: How do electricity and magnetism work?'**

Year 3

- **Unit 3,** 'Simple forces including magnets'

Year 4

- **Unit 3,** 'Simple electrical circuits'

Year 6

- **Unit 2,** 'Changing circuits'

Thread, **'BQ14 Physics: How does the Earth fit into the Universe?'**

Year 1

- **Unit 2,** 'Seasonal changes: autumn and winter'
- **Unit 5,** 'Seasonal changes: spring and summer'

Year 5

- **Unit 3,** 'Earth, Sun and Moon'

Thread, **'BQ15 How can we live sustainably to protect Earth for a better future?'**

Year 1

- **Unit 6,** 'Everyday materials'

Year 2

- **Unit 2,** 'Growing plants'

Year 3

- **Unit 1,** 'Rocks and soils'
- **Unit 4,** 'Healthy eating'

Year 4

- **Unit 2,** 'Introduction to states of matter and changing states'
- **Unit 5,** 'Living things and the environment'

Year 5

- **Unit 1,** 'Properties, changes and separating materials'

Year 6

- **Unit 3,** 'Keeping healthy'
- **Unit 4,** 'Why we group and classify living things'
- **Unit 8,** 'Climate change and sustainability (non-statutory)'

Thread, **'BQ10 Physics: Why do materials have different properties?'**

Year 1

- **Unit 6,** 'Everyday materials'

Year 2

- **Unit 1,** 'Uses of everyday materials'

Year 3

- **Unit 1,** 'Rocks and soils'
- **Unit 6,** 'Introduction to light and shadows'

Year 4

- **Unit 2,** 'Introduction to states of matter and changing states'
- **Unit 4,** 'Introduction to sound'

Year 5

- **Unit 1,** 'Properties, changes and separating materials'

Year 6

- **Unit 6,** 'Light and how it travels'
- **Unit 8,** 'Climate change and sustainability (non-statutory)'