Haydn Primary and Nursery School

Science Policy 2026

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Science Policy

National Curriculum

The national curriculum states: "A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes."

Curriculum Intent

At Haydn Primary School we are scientists! We want our children to love science. We want them to have no limits to what their ambitions are and grow up wanting to be astronauts, forensic scientists, toxicologists or microbiologists. We want them to embody our core values; to be ready, resilient, resourceful, reflective and respectful. The intent is for our Science teaching to equip our children with not only the minimum statutory requirements of the science National Curriculum, but to prepare them for the opportunities, responsibilities and experiences of later life. Our Science curriculum fosters a healthy curiosity in children about our universe and promotes respect for the living and non-living. We believe Science encompasses the acquisition of knowledge, concepts, skills and positive attitudes. Throughout the programmes of study, the children will acquire and develop the key knowledge that has been identified within each unit and across each year group, as well as the application of scientific skills. We ensure that the 'Working Scientifically' skills are built-on and developed throughout children's time at the school so that they can apply their knowledge of science when using equipment, conducting experiments, building arguments and explaining concepts confidently and continue to ask questions and be curious about their surroundings.

Our aim is to ensure that all children:

- Develop an active interest in Science and enjoy Science based activities
- Gain a secure foundation in scientific knowledge, understanding and skills.
- Develop the confidence and ability to apply their scientific knowledge and skills to everyday life and to all areas of the curriculum.
- Develop confidence, initiative and perseverance when tackling problems and exploring new situations
- Gain experience of working co-operatively towards a common goal giving consideration to others.
- Gain knowledge and understanding of the world and understand the effects of their actions on the environment.

Planning

We carry out the curriculum planning in Science in three phases (long-term, medium-term and short-term).

We empower our staff to organise their own year group curriculums under the guidance of our subject leaders. Teachers are best placed to make these judgements. Staff develop year group specific long-term curriculum maps which identify when the different subjects and topics will be taught across the academic year. The science units are taught discretely in Science lessons and staff make meaningful links across subjects where appropriate. They link prior knowledge to new learning to deepen children's understanding and to ensure new concepts and skills are committed to their long term memory.

The Foundation Stage

The subject overview and medium term planning is from the curriculum objectives outlined in the Early Learning Goals (ELG) with links made to appropriate subject areas. Appendix 1

Short Term planning identifies taught sessions, focussed activities and provision in the environment (weekly) for the goals identified.

Key Stage 1 and 2

The whole school subject overview gives an outline of which Science topics are taught in each year group, and when these are taught alongside other areas of the National Curriculum. Appendix 1.

Our medium-term curriculum plans, give details of the teaching objectives for each term in each year group, and define what we teach in each lesson. This must include: clear objectives / teaching sequence / differentiated activities / key Questions (Highlighted in Yellow)/ and ICT opportunities. These are reviewed yearly by each year group, and are designed to ensure appropriate links are made for a cross-curricular approach and have considered the linking of topics where appropriate. Appendix 2.

Planning across the key stages is developed to offer opportunities for pupils to learn and revisit, promoting the acquisition of new skills, opportunities to explore and problem solve, build scientific vocabulary and enquiry skills, and retain the knowledge and skills taught over time. Planning will reflect the teacher's knowledge of and response to common misconceptions, and opportunities to engage with alternative strategies. The progression of knowledge and understanding, and skills can be seen in the Progression Ladder document. Appendix 3.

Curriculum Implementation

Teaching

Foundation Stage

The majority of Science teaching and learning comes through the goal Understanding the World in the EYFS. Children must be supported in developing the knowledge, skills and understanding that help them to make sense of the world. Their learning must be supported through offering opportunities for them to use a range of tools safely; encounter creatures, people, plants and objects in their natural environments and in real-life situations; undertake practical 'experiments'; and work with a range of materials. Focussed activities are planned fortnightly to incorporate these opportunities, linked to a topic or theme of learning. Provision in the environment is planned weekly where children have the opportunity to engage in self- initiated activities in order to develop their scientific, curiosity and problem solving skills.

Key Stage 1

In Key Stage 1, science is taught most half terms, weekly as part of a structured curriculum that fosters a love for learning and exploration. Each unit is designed to build on previous knowledge while introducing new concepts, ensuring that children can connect their learning in meaningful ways. Through engaging, hands-on experiments, students have the opportunity to work scientifically, encouraging curiosity and critical thinking. Teaching involves finding out children's ideas through a variety of elicitation opportunities, analyse children's ideas and provide opportunities to test these ideas, thereby possibly changing them. This approach not only consolidates their understanding but also nurtures essential skills such as observation, questioning, and collaboration, laying a strong foundation for their future studies in science. The main focus of Science teaching in Key Stage 1 at Haydn, is for all children to experience and observe phenomena, looking more closely at the natural and humanly-constructed world around them, and have real WOW moments, becoming curious and asking questions in order to develop their understanding of scientific ideas. Most scientific learning should be done through the use of practical first-hand experiences, with the use of secondary sources where appropriate, such as books, photographs and videos.

Key Stage 2

In Key Stage 2, Science is taught weekly for one afternoon per week or equivalent (approximately 3 hours) through discreet Science lessons, however cross curricular links are made where appropriate. The main focus of Science teaching is to enable pupils to broaden their scientific view of the world around them. They should do this through exploring, talking about, testing and developing ideas about everyday phenomena and the relationships between living things and

familiar environments, and by beginning to develop their ideas about functions, relationships and interactions. They should ask their own questions about what they observe and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple fair tests and finding things out using secondary sources of information. They should draw simple conclusions and use scientific language, first, to talk about and, later, to write about what they have found out. As much as possible, teaching should be through hands-on, practical experiences, and should begin to use a wider range of secondary sources, to include diagrams and graphs. As children progress through the Key Stage, they should encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates. They should also begin to recognise that scientific ideas change and develop over time. Teaching encourages children to be enthusiastic and excited about their new scientific discoveries, leaving Haydn confident in their scientific knowledge, and excited at the prospect of broadening this throughout their learning journey.

Teaching science to children with special needs

We teach science to all children, whatever their ability. Science forms part of the school curriculum policy to provide a broad and balanced education for all children. Through our science teaching, we provide learning opportunities that enable all pupils to make progress. We do this by setting suitable learning challenges and responding to each child's different needs. Assessment against the National Curriculum allows us to consider each child's attainment and progress against age related levels. Our work in science takes into account the targets set in the children's EHCP (education healthcare plan), IPM (individual provision map) or PSP (pupil support plan). Appropriate adaptations are made eg. Use of specific or specialist equipment

The Environment

Each classroom at Haydn reflects the rich and broad curriculum on offer to our children. Classroom and corridor displays serve as a celebration of children's work, as well as an invaluable teaching aid and resource for encouraging independent learners. The classroom as an environment for the teaching of Science not only celebrates children's scientific learning through a dedicated Science display in each classroom, it provides children with the vocabulary needed for the current science topic. Science displays show the learning objectives for the unit of work being taught; identifies where in the teaching sequence children are; provides key vocabulary taught in each lesson and any visual aids to support children's understanding of concepts and retrieval of previous knowledge. In the Early Years, the classroom environment offers children access to equipment for independent exploration of science, such as a wide variety of resources to explore the movement and travel of water; various materials for exploring properties; outdoor learning environments to explore and discover nature. Wherever possible, teachers are encouraged to use the outdoor learning environments for the teaching of science, with a dedicated 'garden' area for the planting and nurturing of plants and wildlife.

Contribution of Science to teaching in other curriculum areas:

Literacy

Science contributes significantly to the teaching of Literacy at Haydn by actively promoting the skills of thinking, reading, writing, speaking and listening. This starts at the earliest levels of children's scientific learning, in the Early Years, contributing to children's language acquisition. Children develop their vocabulary throughout their Science career, constantly developing their scientific vocabulary through experiences in which scientific terms are introduced and used by the children as they discuss and talk about what they have learnt. The children develop oral skills
in science lessons through discussions and through recounting their observations in scientific experiments. This understanding of scientific language allows them to develop their writing skills through creating appropriate written accounts of an activity. They learn to record their work 'scientifically' for example in the year 3 forces topic, children investigate the effect of friction by testing how far a toy vehicle can travel on different surfaces. In order to conduct this experiment, children write a detailed prediction, using scientific vocabulary, recorded their results using tables, and used these findings to write a detailed, scientific conclusion. As in all areas of the curriculum at Haydn there are opportunities for children to develop their reading skills; children are exposed to a wide variety of texts in science, and teachers ensure that appropriate non-fiction topic books are available to children for each new unit of learning. Where appropriate, science learning may be linked to a fiction book, as a stimulus for learning. For example the use of 'Jack and the Beanstalk' in early years, to hook children into the exploration of seeds and plants.

Maths

Science contributes to the teaching of mathematics in a number of ways. There are many opportunities for children to apply mathematical knowledge and skills through the science curriculum, for example; the children use weights and

measures and learn to use and apply number skills; applying problem solving skills when planning and conducting investigations and experiments; they learn to estimate and predict as well as collecting and recording data; they develop the skills of accurate observation and recording of events; they use numbers in many of their answers and conclusions.

Computing

Where appropriate, teachers are encouraged to make meaningful links to computing when planning and teaching Science. Children use computing to support their work in science by learning how to find, select, and analyse information on the internet. Children use computers to record, present and interpret data and to review, modify and evaluate their work and improve its presentation.

Personal, social and health education (PSHE) and citizenship

Science makes a significant contribution to the teaching of personal, social and health education through the teaching of healthy eating and exercise, as well as the children benefitting from opportunities to enjoy nature. Children contribute to the school garden when learning about plants, and have a responsibility for nurturing the life within our school grounds. There are opportunities within science lessons for children to take part in debates and discussions. Science at Haydn promotes the concept of positive citizenship in our dedication to sustainability. Sustainability objectives are included alongside the objectives of the national curriculum, in order to ensure all children learn about their environmental responsibility on a global level.

Spiritual, moral, social and cultural development

Science teaching at Haydn offers children many opportunities to examine some of the fundamental questions in life, for example, the evolution of living things and how the world was created. Through many of the amazing processes that affect living things, children develop a sense of awe and wonder regarding the natural world. Science raises many social and moral questions. Through the teaching of science, children have the opportunity to discuss, for example, the effects of pollution, or genetic engineering and the moral questions involved in this issue. We give them the chance to reflect on the way people care for the planet and how science can contribute to the way we manage the Earth's resources, linking to the schools commitment to incorporating sustainability into our curriculum. Science teaches children about the reasons why people are different and, by developing the children's knowledge and understanding of physical and environmental factors, it promotes respect for other people and the environment, on both a local and global level.

Geography

Science, in its very nature, has close links with Geography. Both seek to discover and explore the world around us, moving us towards a better understanding of our world. The Working Scientifically strand links closely with enquiry-based learning in the Geography curriculum and through topics such as Plants and Rocks, appropriate geographical learning and enquiry occurs as part of the comprehensive science learning. The teaching of sustainability at Haydn encourages children to make meaningful links between Scientific and Geographical thinking and skills for example in the F2 topic 'Reduce, Reuse, Recycle' where clear links are made between materials and their properties, as well as the environment and the impact of human behaviour on the world.

Impact

Our Science Curriculum is high quality, well thought out, deliberate and is planned to demonstrate progression.
We have set out our expectations for each year group in the progression document in Appendix 3.
Through the curriculum planning and delivery of science at Haydn, we expect the vast majority of children to reach age related expectations or better by the end of each key stage. At the end of EYFS we expect the children to achieve the Early Learning Goal, achieving a 2 (expected) or 3 (exceeding) in the Understanding the world strand. By the end of KS1 we expect pupils to achieve age related standards (secure) or better (mastery) in the strands taught in Science and to be demonstrating an interest and curiosity about the world, with an enthusiasm to question and investigate. By continuing to make the expected progress, by the end of KS2 we expect pupils to achieve age related standards (secure) or better (mastery) in all strands of the Science curriculum. We expect children to leave Haydn with not only the necessary skills and knowledge, but an ever growing inquisitiveness and enthusiasm to continue their Science career throughout their learning journey and beyond.
We measure the impact of our curriculum through assessment of pupil attainment and progress, and through ongoing monitoring and reviewing of the subject through the role of the subject leader, as outlined below.

Assessment

Throughout the school teachers will assess children's work formatively in Science, through observations, questioning and marking. Teacher's planning encapsulates the key principles of assessment for learning; active pupil involvement and responsive teaching. These assessments inform the teachers planning for future lessons, to ensure progression of all children. At the end of a unit, teachers assess whether children are working at, above or below the expected level for their age based on their understanding and application of the content of the National Curriculum 2014. Each child's progress and attainment is tracked through the assessment framework on SIMS on an ongoing basis, at the end of each unit of learning. Progress and attainment are reported to parents through parents' evenings.

Monitoring and review

Monitoring of the standards of children's work and of the quality of teaching in Science is the responsibility of the Senior Management team and Science subject leader. The work of the Science subject leader also involves supporting colleagues in the teaching of Science, being informed about current developments in the subject, and providing a strategic lead and direction for the subject in the school. The headteacher allocates leadership time to the Science subject leader so that s/he can review samples of children's work and undertake lesson observations of Science teaching across the school. The subject leader builds a comprehensive portfolio of pupils work in science across the age range which demonstrates typical progression through the strands of science at Haydn. A named member of the school's governing body is briefed to oversee the teaching of Science. This governor meets with the subject leader to review progress termly and receives a written commentary which reports on:

-recent development work
-performance analysis
-pupil outcomes in relation to development priorities, their impact on teaching and learning, and future developments.

Governors are also invited to monitor the effectiveness of the school through a variety of other activities including learning walks and classroom observations as per the Monitoring and Evaluation framework in the School Improvement Plan.

Appendix 1: Science Overview

EYFS		TERM	Science links from Understanding the World
		AUTUMN	Seasonal changes / Nocturnal animals
		SPRING	Changing states of matter - Ice
		SUMMER	Life cycles

Year 1	TERM	Science
	AUTUMN	Seasonal changes / Plants
	SPRING	Seasonal changes / Everyday materials
	SUMMER	Seasonal changes / Animals

Year 2	TERM	Science
	AUTUMN	Living things and their habitats
	SPRING	Plants / Animals including humans
	SUMMER	Materials

Year 3	TERM	Science
	AUTUMN	Rocks and volcanoes
	SPRING	Light, dark and shadows / Forces and magnets
	SUMMER	Plants / Skeletons

	TERM	Science
Year 4	AUTUMN	Electricity / Digestion
	SPRING	States of matter / Sound
	SUMMER	Habitats

Year 5	TERM	Science
	AUTUMN	Earth, sun and moon / Forces
	SPRING	Life cycles
	SUMMER	Properties and changes of materials

Year 6	TERM	Science
	AUTUMN	Light / Evolution and inheritance
	SPRING	Electricity / The circulatory system
	SUMMER	Diet, drugs and lifestyle / Renewable energy

Appendix 2: Example Medium Term Plan

Year 1 Autumn 2 - Science: Seasonal Changes / Plants

Key Vocabulary	Useful Resources
season change autumn leaves deciduous evergreen	
Links to previous knowledge	**Links to subsequent knowledge**
EYFS **Physical Development**: Activities like collecting leaves or participating in outdoor play promote gross motor skills, while crafting with natural materials can enhance fine motor skills. **Communication and Language:** Discussions about the changes in nature, storytelling about autumn themes, and describing sensory experiences help develop vocabulary and language skills. **Understanding the World:** Exploring the environment, discussing seasonal changes, and learning about different plants and animals helps children develop a sense of place and an understanding of the world around them.	Year 2 – Observe and describe how seeds and bulbs grow into mature plants Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy

Diversity	British Values	Sustainability
Discussions about plants can include their uses in different cultures, such as food, medicine, and materials, highlighting the relationship between plants and cultural diversity.	**Mutual Respect**: respect for all living things. Teaching children to appreciate the role of plants encourages respect for nature and the importance of preserving it.	**Awareness of Needs**: This awareness of what plants need to grow can foster a sense of responsibility toward the environment. **Food Sources**: Understanding how plants grow helps children recognize their role in food production. This knowledge can lead to

	Tolerance of Different Cultures: various uses of plants in different cultures—such as food, medicine, and traditional practices. **Responsibility**: Learning about the needs of plants encourages a sense of responsibility toward the environment.	discussions about sustainable farming practices and the impact of agriculture on the planet. **Environmental Impact**: the impact of human activities on plant life and the importance of protecting habitats.

Learning Objective & Core Knowledge	Retrieval Task & Activities
Lesson1 **LO :** observe changes across the 4 seasons – summer to autumn	**Retrieval Task**
Introduce seasons – What are the seasons? Which season are we in now? Which season came before? What happens when the seasons change? How do we know when the seasons have changed? Look at images of Autumn and discuss.	**Challenge** Chn draw and label Autumn pictures
Lesson 2 **LO:** observe changes across the 4 seasons – summer to autumn	**Retrieval Task** What is a tree that looses its leaves called?
Recep which season we are in now. Look at examples of chns autumn pictures from last weeks challenge. Today we are going on an autumn walk – lets see how many of the things you have drawn we can spot around our school. Share autumn checklist.	**Focus** Autumn walk using checklist on clipboards.
Lesson 3 **LO:** To describe and compare seeds and bulbs *Working scientifically – making careful observations*	**Retrieval Task**
Share new topic with the children – Plants. What do we already know about plants? Create a whole class mindmap as start of unit assessment. Introduce seeds and bulbs. Seeds and bulbs ppt. Explain to children that they will be planting seeds or bulbs to observe growing over the next few weeks.	Children plant their own seeds. Chn draw a picture of their seed in their plant diary. Write a sentence about it.

Lesson 4 **LO:** To describe and compare plants *Working scientifically – observing closely using simple equipment*	**Retrieval Task** What season is this tree in?
Look at some photos of different plants and give the chn chance to discuss each with talk partners – can they name any of the plants? Explain what the words 'Similar' and 'Different' mean and look more closely at some photographs of plants. What similarities and differences can you notice? Are they all the same? In small groups chn look at their own copies of photographs/real plants and make comparisons – encourage them to consider colour, shape, texture and anything else they notice. **Plenary – introduce challenge for the week** Are they all plants? Is this a plant or not?	**Focus** Chn to make observations of their plants- plant diary **Challenge** Sort pictures into plants or not plants.
Lesson 5 **LO:** To name and compare the parts of plants	**Retrieval Task** Talk partner – how could you group these plants?
Look closely at the parts of a plant on IWB (Twinkl ppt). Can chn identify any of these parts? Which parts can we see and which can't we? Illicit that the roots are underground and so we don't usually see them. Children then match the part to its name on IWB. Then, discuss the basic function of each part of a plant. Model drawing and labelling a plant.	**Focus** Chn to make observations of their plants- plant diary **Challenge** Chn draw their own diagram of a plant and label the parts – vocabulary given for labels Stem, leaves, flower, roots Adaptation – cut and stick labels to diagram of a plant.
Lesson 6 **LO:** To identify and name common garden and wild plants	**Retrieval Task** Share vocabulary cards from classroom display – read the definition and chn chant back the word. Root, stem, flower, leaves, fruit
Discuss where we see plants (gardens, parks, woods, along rivers, along roads etc) Share with the children that some plants are garden plants – planted by people in parks or gardens to look nice, and others are wild plants – they grow wherever the seeds land, some of these are known as weeds when they grow where people don't want them. Look at a variety of garden and wild plants – can the chn name any of them? Have they seen any of them before? Where?	**Focus** Go on a garden/wild plant hunt around school and in the forest school garden. Take a checklist and see how many different garden and wild plants the chn can find. OT – Garden and wild plant matching game
Lesson 7 **LO:** To identify and name common trees	**Retrieval Task**
Recap plants and show images of plants for chn to discuss similarities and differences, followed by images of only trees – how are all of these plants similar? They're all trees!	**Focus** In pairs chn use **Tree Matching Cards** (one card with an image of a tree and another with its corresponding leaf or fruit) to explore and discuss trees. Can chn correctly match the cards? Questions – how can we tell the difference between a pine tree and an oak tree?

Display pictures of common trees (e.g., Oak, Pine, Maple, Birch, and Apple). Briefly describe the main features of each tree **Oak**: Large, lobed leaves, acorns. **Pine**: Needle-like leaves, cones. **Maple**: Pointed leaves, helicopter seeds. **Birch**: Smooth, white bark. **Apple**: Oval leaves, apples. Explain to the children that they will become "Tree Detectives" and will have to use their observation skills to figure out which tree is which!	What did you notice about the oak tree leaves compared to the maple? Where have you seen pine trees before?
Lesson 8 **LO:** To name, sort and compare common fruit and vegetable plants	**Retrieval Task**
Show chn images/ examples of fruits and vegetables. Where do all of these things come from? PLANTS! What is similar/ different about them? How could we sort then? Establish which are fruits and which are vegetables. Explain the difference between f and v. **Fruits**: Generally sweet, grow from flowers, and contain seeds (e.g., apple, banana, tomato). **Vegetables**: Often savory, grown from the ground or plants without seeds inside (e.g., carrots, potatoes, lettuce). Encourage the children to say the names of the fruits and vegetables and discuss their shapes, colors, and tastes.	**Focus** Chn to make observations of their plants- plant diary Give table/group a set of mixed fruits and vegetables (either real or pictures) and a **sorting tray**. Ask them to sort the items into two groups: **Fruits** and **Vegetables**. As they sort, ask guiding questions like: "What makes this a fruit? Can you see any seeds?" "Why do you think this is a vegetable? What part of the plant is it from?" Once all the items are sorted, have a class discussion to review the groups and make sure the items are correctly categorized. Use the **chart paper or whiteboard** to list fruits and vegetables. Discuss their similarities and differences. "What do fruits and vegetables have in common?" (e.g., both come from plants, both are healthy) "How are fruits and vegetables different?" (e.g., fruits are sweet, vegetables are savory; fruits have seeds, vegetables often don't)

	Challenge activity – Sorting fruit and veg pics in venn diagram

Appendix 3: Science Progression Map

EYFS	KS1		KS2			
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Knowledge and understanding the world Explore creatures, people, plants and objects in their natural environments. Observe and manipulate objects and materials to identify differences and similarities Use senses, feeling materials or listening to sounds in the environment, such as sirens or farm animals. Ask questions about why things happen and how things work Answer questions about what they think will happen to help them communicate, plan, investigate, record and evaluate findings Reduce, Reuse, recycle	**Plants** Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. Identify and describe the basic structure of a variety of common flowering plants, including trees.	**Plants** Observe and describe how seeds and bulbs grow into mature plants Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.	**Plants** Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers Explore the requirements of plants for life and g (air, light, water, nutrients from soil, and room t grow) and how they vary from plant to plant Investigate the way in which water is transported within plants Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.	**Sound** Identify how sounds are made, associating some of them with something vibrating Recognise that vibrations from sounds travel through a medium to the ear Find patterns between the pitch of a sound and features of the object that produced it Find patterns between the volume of a sound and the strength of the vibrations that produced it Recognise that sounds get fainter as the distance from the sound source increases.	**Earth and Space** Describe the movement of the Earth, and other planets, relative to the Sun in the solar system Describe the movement of the Moon relative to the Earth Describe the Sun, Earth and Moon as approximately spherical bodies Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky. Understand the effects of climate change and changes to the earths atmosphere	**Evolution and inheritance** Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.
Physical Development Recognise changes that happen to the body when they are active. Learn about the importance of keeping healthy and the things that contribute to this by, for example, cooking or identifying fruit and vegetables.	**Animals including humans** Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals Identify and name a variety of common animals that are carnivores, herbivores and omnivores Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense	**Animals, including humans** Notice that animals, including humans, have offspring which grow into adults Find out about and describe the basic needs of animals, including humans, for survival (water, food and air) Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.	**Animals, including humans** Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat Identify that humans and some other animals have skeletons and muscles for support, protection and movement. Understand how our food is produced, transported, and its impacts on the environment as a hugely important aspect of sustainability.	**Animals, including humans** Describe the simple functions of the basic parts of the digestive system in humans Identify the different types of teeth in humans and their simple functions Construct and interpret a variety of food chains, identifying producers, predators and prey.	**Animals, including humans** Describe the changes as humans develop to old age.	**Animals, including humans** Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function Describe the ways in which nutrients and water are transported within animals, including humans.
Creative development Explore and respond to a variety of sensory experiences Explore materials. Explore colour, texture, shape, form and space by mixing colours, painting, modelling and moving. Learn about sounds - how they can be changed and how to imitate sounds they hear.	**Everyday materials** Distinguish between an object and the material from which it is made Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock Describe the simple physical properties of a variety of everyday materials Compare and group together a variety of everyday materials on the basis of their simple physical properties. Identify materials that are recyclable and understand the importance of recycling	**Uses of everyday materials** Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.	**Light** Recognise that they need light in order to see things and that dark is the absence of light Notice that light is reflected from surfaces Recognise that light from the sun can be dangerous and that there are ways to protect their eyes Recognise that shadows are formed when the light from a light source is blocked by a solid object Find patterns in the way that the size of shadows change.	**States of matter** Compare and group materials together, according to whether they are solids, liquids or gases Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.	**Properties and changes of materials** Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic Demonstrate that dissolving, mixing and changes of state are reversible changes Explain that some changes result in the formation of new materials, and that this kind	**Light** Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.

					of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.	
	Seasonal changes Observe changes across the four seasons Observe and describe weather associated with the seasons and how day length varies.	**All living things and their habitats** Explore and compare the differences between things that are living, dead, and things that have never been alive Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other Identify and name a variety of plants and animals in their habitats, including micro-habitats Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food. Understand the importance of biodiversity to sustainability	**Rocks** Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties Describe in simple terms how fossils are formed when things that have lived are trapped within rock Recognise that soils are made from rocks and organic matter.	**Living things and their habitats** Recognise that living things can be grouped in a variety of ways Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment Recognise that environments can change and that this can sometimes pose dangers to living things. Explore the impacts of human induced climate change on changes to animals habitats	**Living things and their habitats** Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird Describe the life process of reproduction in some plants and animals.	**Living things and their habitats** Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals Give reasons for classifying plants and animals based on specific characteristics.
		▪	**Forces and magnets** Compare how things move on different surfaces Notice that some forces need contact between two objects, but magnetic forces can act at a distance Observe how magnets attract or repel each other and attract some materials and not others describe magnets as having two poles Predict whether two magnets will attract or repel each other, depending on which poles are facing. 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	**Electricity** Identify common appliances that run on electricity Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit Recognise some common conductors and insulators, and associate metals with being good conductors.	**Forces** Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object Identify the effects of air resistance, water resistance and friction, that act between moving surfaces Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.	**Electricity** Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches Use recognised symbols when representing a simple circuit in a diagram. Explore the effects of energy consumption, renewable versus non-renewable energy, CO2 emissions, fuels, and climate change.

Working Scientifically

	Year 1 & 2	Year 3 & 4	Year 5 & 6
	Asking simple questions and recognising that they can be answered in different ways Observing closely, using simple equipment Performing simple tests Identifying and classifying Using their observations and ideas to suggest answers to questions Gathering and recording data to help in answering questions.	Asking relevant questions and using different types of scientific enquiries to answer them Setting up simple practical enquiries, comparative and fair tests Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions	Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary Taking measurements, using a range of scientific equipment, with increasing accuracy and precision Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and bar and line graphs Using test results to make predictions to set up further comparative and fair tests Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other presentations Identifying scientific evidence that has been used to support or refute ideas or arguments.

		Identifying differences, similarities or changes related to simple scientific ideas and processes Using straightforward scientific evidence to answer questions or to support their findings.	

	EYFS	KS1		KS2			
		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
What Science looks like at Haydn (topics)	• **Bonfire night/Diwali/Christmas –** food prep, light and dark, nocturnal animals • **Cold lands –** freezing and melting, magnets, animals • **Growing –** life cycles, our bodies, keeping healthy, our senses,	• **Our world** – Seasonal changes, animals including humans • **Under the sea** - animals • **Polar regions** – animals • **Space** – everyday materials • **Dinosaurs –** everyday materials, animals including humans • **Rainforests -** plants	• **Into the woods –** living things and their habitats • **Nonsense –** animals, plants • **WW2 –** everyday materials	• **Vesuvius –** rocks • **Chinese new year –** light and dark • **Lights, camera, action!** – magnets • **Really wild –** animals • **Aztecs/ Magnas -** Plants	• Sound • Electricity • Habitats	• **The earth and beyond -** Space • Forces • Life cycles • Properties and changes of materials	• Evolution and inheritance • Living things and habitats • Human body • Light • Electricity
Key Vocabulary These are the basics and by no means a definitive list.		**Animals including humans** Fish, Reptiles, Mammals, Birds, Amphibians, Herbivore, Omnivore, Carnivore, Leg, Arm, Elbow, Head, Ear, Nose, Back, Wings, Beak **Plants** Deciduous, Evergreen trees, Leaves, Flowers (blossom), Petals, Fruit, Roots, Bulb, Seed, Trunk, Branches, Stem **Everyday Materials** Wood, Plastic, Glass, Paper, Water, Metal, Rock, Hard, Soft, Bendy, Rough, Smooth **Seasonal Changes** Summer, Spring, Autumn, Winter, Sun, Day, Moon, Night, Light, Dark	**Animals including humans** Survival, Water, Air, Food, Adult, Baby, Offspring, Kitten, Calf, Puppy, Exercise, Hygiene **Plants** Seeds, Bulbs, Water, Light, Temperature, Growth **Living things and their habitats** Living, Dead, Habitat, Energy, Food chain, Predator, Prey, Woodland, Pond, Desert **Everyday materials and their uses** Hard, Soft, Stretchy, Stiff, Shiny, Dull, Rough, Smooth, Bendy, Waterproof, Absorbent, Opaque, Transparent Brick, Paper, Fabrics, Squashing, Bending, Twisting, Stretching Elastic, Foil	**Animals including humans** Movement, Muscles, Bones, Skull, Nutrition, Skeletons, **Plants** Air, Light, Water, Nutrients, Soil, Reproduction, Transportation, Dispersal, Pollination, Flower **Rocks** Fossils, Soils, Sandstone, Granite, Marble, Pumice, Crystals, Absorbent **Light** Light, Shadows, Mirror, Reflective, Dark, Reflection **Forces and magnets** Magnetic, Force, Contact, Attract, Repel, Friction, Poles**,** Push, Pull	**Animals including humans** Mouth, Tongue, Teeth, Oesophagus, Stomach, Small Intestine, Large Intestine, Herbivore, Carnivore, Canine, Incisor, Molar **Living things and their habitats** Vertebrates, Fish, Amphibians, Reptiles, Birds, Mammals, Invertebrates, Snails, Slugs, Worms, Spiders, Insects, Environment, Habitats **States of Matter** Solid, Liquid, Gas, Evaporation, Condensation, Particles, Temperature, Freezing, Heating **Sound** Volume, Vibration, Wave, Pitch, Tone, Speaker **Electricity** Cells, Wires, Bulbs, Switches, Buzzers, Battery, Circuit, Series, Conductors, Insulators	**Animals including humans** Foetus, Embryo, Womb, Gestation, Baby, Toddler, Teenager, Elderly, Growth, Development, Puberty **Living things and their habitats** Mammal, Reproduction, Insect, Amphibian, Bird, Offspring **Properties and changes of materials** Hardness, Solubility, Transparency, Conductivity, Magnetic, Filter, Evaporation, Dissolving, Mixing **Earth and Space** Earth, Sun, Moon, Axis, Rotation, Day, Night, Phases of the Moon, star, constellation **Forces** Air resistance, Water resistance, Friction, Gravity, Newton, Gears, Pulleys	**Animals including humans** Circulatory, Heart, Blood Vessels, Veins, Arteries, Oxygenated, Deoxygenated, Valve, Exercise, Respiration **Living things and their habitats** Classification, Vertebrates, Invertebrates, Micro-organisms, Amphibians, Reptiles, Mammals, Insects **Evolution and Inheritance** Fossils, Adaptation, Evolution, Characteristics, Reproduction, Genetics **Light** Refraction, Reflection, Light, Spectrum, Rainbow, Colour, **Electricity** Cells, Wires, Bulbs, Switches, Buzzers, Battery, Circuit, Series, Conductors, Insulators**,** Amps, Volts, Cell
Non-negotiable – what must they know	Chn must know the four seasons Chn can observe and talk about the seasonal changes around them. Chn understand that things melt when they get warm.	Chn must know key features of each season. Chn must know the parts of the body. Chn must know the parts of a plant; stem, leaves, flower, roots Chn must recognise the difference between an object and its material.	Chn must know what plants need to grow and stay healthy. Chn must know the basic needs of animals and humans and their effect on growth. Chn must identify the properties of different materials. Chn must be able to compare different types of habitat.	Chn must know the h2o is transported in plants. Chn must know the role of the skeleton and muscles. Chn can explain how a shadow is made. Chn can name 3 rock types and explain their formation. Chn can name some magnetic and non-magnetic materials.	Chn must identify how sounds are made and reach the ear. Chn must know how humans digest food and the part played by different parts of the body. Chn must differentiate between a solid, liquid and gas. Chn must recognise how all living things adapt to their environment. Chn must know how electricity travels from a source.	Chn must know the placement of the earth and other planets and how the earth and moon move in relation to each other. Chn must be able to identify the changes to a human as they age. Chn must be able to compare materials and understand their changes. Chn must describe the life cycles and reproduction process of some animals and plants. Chn must be able to identify different forces and their effects.	Chn must know that the brightness of a lamp/volume of a buzzer changes as the voltage in a circuit changes. Chn must be able to describe how living things have adapted to the climate in which they live. Chn must be able to explain how light travels and why we can see things. Chn must name the components of blood and state their functions. Chn can describe the difference between inherited characteristics and environmental characteristics giving examples.
Key Question – how do you know they know**?**	What is the season now? How do you know? What happens when ice gets warm?	What happens to trees in autumn? (winter/spring/summer) Point to your… What are 4 parts of a plant? Is *(this)* and object of a material? How do you know?	What keeps us alive? What are the three things a seed needs to grow? What material would you use to make…? why? What habitat would suit a hedgehog? Why?	Where does the water go after it meets the roots? What is the job of the skeleton and muscles? How are shadows made? How is a (x) rock formed? What in this room might be magnetic? How could we test it?	Can you draw a diagram to show how sound reaches the ear? What happens to food as it travels through the digestive system? Why is a ___ suited to its environment? (plant or animal) Can you make an electrical circuit to make a bulb light up? Can you add a switch?	How are objects in this room reacting to the force of gravity? What are the stages of a human life cycle? Which stage of life are you in? What will change as you move into the next stage? Can you name the planets in order from the sun?	What happens to the lamp as we increase the voltage? Would a cactus survive in (x) environment? How do you know? Why do shadows change form? What are the jobs of our veins and arteries? How do we inherit characteristics from our parents?

Experiences – what helps them remember?	**Trips** **Woodthorpe park** – seasonal changes	**Trips** **Space centre** - materials **Twycross zoo –** animals	**Trips** **Blackwoods** – animals and habitats **Whitepost farm** – animals	**Trips** **Cadbury world –** plants (Aztecs) **Cinema –** Magnets **Trips to school garden –** sustainability	**Trips** **Yorkshire wildlife park –** living things and their habitats Visits **Artist who works in sound experiments, tuning forks and sound fountain** - Sound	**Space centre –** The Earth and beyond **Sherwood forest -** tr	