

## SCIENCE KNOWLEDGE & SKILLS PROGRESSION – We are Scientists

*“The important thing is to never stop questioning.” Albert Einstein*

We want to engage and harness our pupils’ curiosity in the natural world, scientific processes and discoveries and applications in our world. We achieve this by designing a knowledge-rich science curriculum that provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Practical experiences and investigations support our approach to teaching the essential aspects of the knowledge, methods, processes and uses of science. The curriculum is taught by carefully sequenced learning outcomes that build on prior learning and progress through Key Stage 2. Teaching and learning occurs through the delivery of programmes of studies in each year group. Each programme of study has a focus on a specific scientific discipline and pupils learn new knowledge and skills that build on their previous understanding. Some modules of science are taught as a progression of knowledge and skills throughout KS2 i.e. they are revisited and developed as the pupils move forward through the school e.g. plants and living things. Whereas other modules are taught more discretely in certain year groups to ensure a broad curriculum that is appropriately chosen for each year group.

### Our pupils learn to:

- develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics
- 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
- use the scientific knowledge required to understand the uses and implications of science, today and for the future

### A journey through our Science curriculum

	AUTUMN		SPRING		SUMMER	
<b>Year 3</b>	Animals including humans Biology <b>Significant Scientist</b> <b>Leonardo Da Vinci</b>		Rocks and Soils Chemistry	Forces and Magnets Physics <b>Significant Scientist</b> <b>Isaac Newton</b>	Light & Shadow Physics	Plants Biology <b>Significant Scientist:</b> <b>Beatrix Potter</b>
<b>Year 4</b>	Animals Including Humans Biology	Electricity Physics <b>Significant Scientist</b> <b>Benjamin Franklin</b>	States of Matter Physics <b>Significant Scientist:</b> <b>Albert Einstein</b>	Sound Physics	Living Things and their Habitats & Conservation in our local area Biology <b>Significant Scientist</b> <b>David Mayer de Rothschild</b>	
<b>Year 5</b>	Forces Chemistry	Properties and Changes of Materials Chemistry	Earth and Space Chemistry <b>Significant Scientist</b>	Human body changes Biology	Plant reproduction Seed dispersal Biology	Life cycles of animals Biology

		Significant Scientist John Boyd Dunlop	Mae Jemison			Significant scientist: David Attenborough
Year 6	Light Physics Significant Scientist: Thomas Young	Circulatory system Biology	Evolution and Inheritance Biology Significant Scientist: Jane Goodall	Micro Organisms and classification Biology	Electricity Physics Significant scientist: Michael Faraday	

## What our pupils have experienced - a journey through MIANS KS1 Science Curriculum

	Work scientifically	Seasons	Animals including Humans	Plants	Living things and their habitats	Everyday Materials
KS1	Ask simple questions and use scientific language. Comparative tasks; observations-similarities, differences, patterns Gathering data to answer questions including from secondary sources.	Changes across the 4 seasons; day length varying	Basic parts of the human body; needs of animals and humans; importance of exercise, diet and hygiene. Identify and name a variety of common animals. Carnivore/herbivore and omnivore identification. Animals have offspring which grow into adults. Describe and compare the structure of common animals.	Seeds and bulbs. Plants need water, light and temperature to grow. Grow plants and change the variables. Identify and name common wild and garden plants, deciduous and evergreen trees. Identify and describe structure of variety of common flowering plants, including trees. Explore the school grounds and local area for plants and trees.	Explore and compare living, dead and inanimate things. Investigating plant and animal habitats and their interdependence. Name plants / animals in their habitats and micro-habitats. Identify food chains.	Distinguish between an object and the material it is made from. Identify, name, compare and group a variety of everyday materials on the basis of physical properties. Identify suitability of materials for particular use. Identify how some solid materials can be changed in different ways.

### Key Stage 2 Science National Curriculum

As well as developing their scientific knowledge and conceptual understanding, children develop their 'working scientifically' skills which is taught through and clearly related to their substantive science content in the programme of study.

**WORKING SCIENTIFICALLY: Previous to Year 3 pupils will have experienced the following skills:**

- Ask simple questions and recognise that they can be answered in different ways
- Use simple equipment to observe closely
- Perform simple comparative tests
- Identify, group and classify
- Use his/her observations and ideas to suggest answers to questions noticing similarities, differences and patterns
- Gather and record data to help in answering questions including from secondary sources of information
- Able to suggest what to change and keep the same for a fair test
- Able to identify and verbalise skills used when completing end of unit tasks and question

**WORKING SCIENTIFICALLY:**

**During years 3 and 4, pupils should be taught to use the following practical scientific methods through the teaching of the programme of study content:**

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

**WORKING SCIENTIFICALLY:**

**During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:**

- 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, taking repeat readings when appropriate
- recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, 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 and degree of trust in 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.

## Science progression through strand of Science curriculum

### Animals including humans and human lifestyle

Previous learning (Y2)	Year 3	Year 4	Year 5	Year 6
<b>Healthy living</b>	<b>Muscles and skeletons</b>	<b>Teeth and Healthy eating</b>	<b>Changes</b>	<b>Circulatory System</b>
Understand that animals, including humans, have offspring which grow into adults	<ul style="list-style-type: none"> <li>• identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make</li> </ul>	<ul style="list-style-type: none"> <li>• describe the simple functions of the basic parts of the digestive system in humans</li> </ul>	describe the changes as humans develop to old age.	identify and name the main parts of the human circulatory system, and describe the

<ul style="list-style-type: none"> <li>Describe the basic needs of animals, including humans, for survival (water, food and air)</li> <li>Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene</li> </ul>	<p>their own food; they get nutrition from what they eat</p> <ul style="list-style-type: none"> <li>identify that humans and some other animals have skeletons and muscles for support, protection and movement.</li> </ul>	<ul style="list-style-type: none"> <li>identify the different types of teeth in humans and their simple functions</li> <li>construct and interpret a variety of food chains, identifying producers, predators and prey</li> </ul>		<p>functions of the heart, blood vessels and blood</p> <p>recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function</p> <p>describe the ways in which nutrients and water are transported within animals, including humans.</p>
	<p><b>VOCABULARY:</b> Backbone, balanced diet, blood vessels, bones, brain, carbohydrate, dietary fibre, heart, invertebrates, joints, movement, minerals, muscles, nutrients, nutrition, protection, ribs, sockets, skeleton, skull, spine, support, tendons, vertebrates, vitamins, Adult should also use: Endoskeleton, exoskeleton</p>	<p><b>VOCABULARY:</b> Absorb, anus, blood stream, canines, consumer, decay, dentine, digestion, enamel, energy, faeces, gums, incisors, large intestine, molars, nerves, oesophagus, plaque, predator, prey, producer, saliva, small intestines, stomach, swallowing Adult should also use: chemical enzymes, gastric juices, reabsorption of water</p>	<p><b>VOCABULARY:</b> Adolescence, adolescent, arthritis, gestation period, life expectancy, menstruation, pregnant, puberty</p>	<p><b>VOCABULARY:</b> Addiction, aorta, artery, atrium, blood, bronchi, capillaries, carbon dioxide, circulatory system, deoxygenated, diaphragm, lifestyle, lungs, nicotine, oxygen, oxygenated, plasma, pulmonary vein/artery, pulse, red blood cells, respiration, vein, ventricles, white blood cells Adult should also use: gaseous exchange, aerobic respiration, trachea, haemoglobin</p>

Living things and their habitats				
Previous learning (Y2)	Year 3	Year 4	Year 5	Year 6
		Habitat and classification	Animal life Cycles	Micro-organisms and Classification
<p>Explore and compare the differences between things that are living, dead, and things that have never been alive</p> <ul style="list-style-type: none"> <li>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</li> </ul>		<ul style="list-style-type: none"> <li>Recognise that living things can be grouped in a variety of ways</li> <li>Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment</li> <li>Recognise that environments can change and that this can sometimes pose dangers and have an impact on living things</li> </ul>	<p>Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird</p> <ul style="list-style-type: none"> <li>Describe the life process of reproduction in some animals</li> </ul>	<p>Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals</p> <ul style="list-style-type: none"> <li>Give reasons for classifying plants and animals based on specific characteristics</li> </ul>

<ul style="list-style-type: none"> <li>Identify and name a variety of plants and animals in their habitats, including microhabitats</li> <li>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</li> </ul>				
		<b>VOCABULARY:</b> amphibians, classify, classification keys, environment, mammals, human impact, invertebrates, pollution, reptiles, vertebrates Plant groups (trees, grasses, flowering and non-flowering plants) Adult should also use: organism, population, deforestation, development, variation characteristics.	<b>VOCABULARY:</b> asexual reproduction, external fertilisation, fertilisation, filament, gestation, internal fertilisation, larva, metamorphosis, pollen, seed dispersal, sexual reproduction, sperm,	<b>VOCABULARY:</b> Bacteria, fauna, fermentation, flora, fungi/fungus, genus, microbes, micro-organism, organism, species Name invertebrates: arachnid, mollusc, insect and crustacean
<b>Plants</b>				
<b>Previous learning (Y2)</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>
	<b>Plant growth and lifecycle</b>		<b>Reproduction and seed dispersal</b>	<b>Adaption</b>
<ul style="list-style-type: none"> <li>Observe and describe how seeds and bulbs grow into mature plants</li> <li>Find out and describe how plants need water, light and a suitable temperature to grow and stay health</li> </ul>	Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers <ul style="list-style-type: none"> <li>Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant</li> <li>Investigate the way in which water is transported within plants</li> <li>Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal</li> </ul>		Describe the life process of reproduction in some plants	identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.
	<b>VOCABULARY:</b> plants light warmth		<b>VOCABULARY:</b> Anther, asexual reproduction, carpel, fertilisation,	<b>VOCABULARY:</b> Bacteria, fauna, fermentation, flora, fungi/fungus,

	leaves roots stem grow deciduous evergreen trunk bud blossom flowers petals fruit vegetable bulb seed nutrients pollination		filament, germination, pollination, seed dispersal, seed formation, sepal, sexual reproduction, stamen, style, stigma Adult should also use: plantlets, runners	genus, microbes, micro-organism, organism, species Name invertebrates: arachnid, mollusc, insect and crustacean
Materials and States of Matter				
Previous learning (Y2)	Year 3	Year 4	Year 5	Year 6
<ul style="list-style-type: none"> <li>Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses</li> </ul> <p>Describe how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching</p>	<p>compare and group together different kinds of rocks on the basis of their appearance and simple physical properties recognise that soils are made from rocks and organic matter</p> <p>A study of the type of rocks and soils found in our local environment.</p>	<p>Compare and group materials together, according to whether they are solids, liquids or gases</p> <ul style="list-style-type: none"> <li>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)</li> <li>Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature</li> </ul>	<ul style="list-style-type: none"> <li>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</li> <li>Recognise that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution</li> <li>Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating</li> <li>Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic</li> <li>Demonstrate that dissolving, mixing and changes of state are reversible changes</li> <li>Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda</li> </ul>	
	<p><b>vocabulary</b> Absorb, extinct, crystals, fossils, granite, grains, humus, igneous, impermeable, layers, magma, metamorphic, mineral, molten, palaeontology/palaeontologists, permeable, rock, sediment, sedimentary, soil Name of rocks: granite, marble, sand, clay, limestone, chalk Adult should also</p>	<p><b>Vocabulary</b> Air, boiling point, boiling, condensation/condensing, degree Celsius, energy transfer, evaporation/evaporating, freezing, freezing point, gaseous, grain, matter, melting, melting point, oxygen, particles, powder, water cycle, water vapour solidify, precipitation,</p>	<p><b>Vocabulary</b> Burning, dissolve, electrical conductor, filter, insoluble, irreversible change, mixture, reversible change, rust, sieving, soluble, solute, solution, solvent, thermal conductor, thermal insulator combustion, oxidisation, chemical reaction, residue, filtration</p>	

	use: Erosion, particles, physical properties, porous	transpiration, forces of attraction		
Electricity				
Previous learning (Y2)	Year 3	Year 4	Year 5	Year 6
know that electricity is needed to make something work Know that some appliances need batteries and some use mains electricity to work.		<ul style="list-style-type: none"> <li>Identify common appliances that run on electricity</li> <li>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 <ul style="list-style-type: none"> <li>Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit</li> <li>Recognise some common conductors and insulators, and associate metals with being good conductor</li> </ul> </li> </ul>		<ul style="list-style-type: none"> <li>Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit</li> <li>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</li> <li>Use recognised symbols when representing a simple circuit in a diagram</li> </ul>
		<b>Vocabulary</b> electrical circuit cell bulb buzzer motor conductor insulator switch break power bright brightness dimmer batteries components copper		<b>Vocabulary</b> series circuit buzzer motor open switch component lamp cell batteries filament voltage current conductor insulator mains electricity plug
Forces and Magnets				
Previous learning (Y2)	Year 3	Year 4	Year 5	Year 6
find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching		<ul style="list-style-type: none"> <li>Compare how things move on different surfaces</li> <li>Notice that some forces need contact between two objects, but magnetic forces can act at a distance</li> </ul>	Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object	

		<ul style="list-style-type: none"> <li>• 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</li> <li>• Describe magnets as having two poles Predict whether two magnets will attract or repel each other, depending on which poles are facing</li> </ul>	<ul style="list-style-type: none"> <li>• Identify the effects of air resistance, water resistance and friction, that act between moving surfaces</li> <li>• Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect</li> </ul>	
		<p><b>Vocabulary</b> Air resistance, attract, bar magnet, button magnet, compass, contact, float, force, forcemeter, friction, gravity, horse shoe magnet, iron, magnet, magnetic, magnetic North, non-contact, non-magnetic, North pole, poles, repel, ring magnet, sink, South pole, strength</p>	<p><b>Vocabulary</b> Drag forces, gears, levers, mechanisms, Newton, noncontact force, pulleys, reliable, springs, transference of force and motion, water resistance, weight</p>	
<b>Light</b>				
<b>Previous learning (Y2)</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>
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.	Recognise that he/she needs light in order to see things and that dark is the absence of light <ul style="list-style-type: none"> <li>• Notice that light is reflected from surfaces</li> <li>• Recognise that light from the sun can be dangerous and that there are ways to protect eyes</li> <li>• Recognise that light from the sun can be dangerous and that there are ways to protect eyes</li> <li>• Find patterns in the way that the size of shadows change</li> </ul>			<ul style="list-style-type: none"> <li>• Recognise that light appears to travel in straight lines</li> <li>• 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</li> <li>• 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</li> <li>• Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them</li> </ul>



	<b>Vocabulary</b> Absorb, beam, block, direction of light, bright, dim, dull, light source, mirror, opaque, reflect, reflective, shadow, shiny, sun light, translucent, transparent Names of light sources Speed of light, emit,			<b>Vocabulary:</b> opaque translucent transparent pupil iris lens cornea reflection refraction prism spectrum
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<b>Evolution and Inheritance</b>				
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<b>Previous learning (Y2)</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>
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		<b>Environmental adaptions</b>		
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Animals inc humans: Understand that animals, including humans, have offspring which grow into adults Living things and their habitat: Understand that living things are suited to their habita	Rocks: Describe in simple terms how fossils are formed when things that have lived are trapped within rock	Animals inc humans: Recognise that environments can change and that this can sometimes pose dangers and have an impact on living thing		<ul style="list-style-type: none"> <li>• Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago</li> <li>• Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents</li> <li>• Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution</li> </ul>
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				<b>Vocabulary</b> Adaptation, chromosomes, competition, DNA, evolution, evolutionary change features, environmental conditions, environmental variations, fossil records, genes, natural selection, reproduction, survival of the fittest, variation
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<b>Earth and Space</b>				
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<b>Previous learning (Y2)</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>
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		<b>Forces</b>		
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		Notice that some forces need contact between two objects, but magnetic forces can act at a distance	Describe the movement of the Earth, and other planets, relative to the Sun in the solar system	
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			<ul style="list-style-type: none"> <li>• Describe the movement of the Moon relative to the Earth</li> <li>• Describe the Sun, Earth and Moon as approximately spherical bodies</li> <li>• Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky</li> </ul>	
<p><b>Seasonal change</b> observe changes across the four seasons observe and describe weather associated with the seasons and how day length varies</p>		<p><b>Vocabulary:</b> force, forcemeter, friction, gravity</p>	<p><b>Vocabulary</b> Asteroids, axes/Axis, celestial body, comets, galaxy, light years, meteors, orbit, phases of the moon, planet, revolve, rotation, shadow clocks, spherical, spin, solar system, star, sun, sundials, time zone Name of planets Adult should also use: Geocentric model, Heliocentric model, elliptical orbit</p>	

### Sound

Previous learning (Y2)	Year 3	Year 4	Year 5	Year 6
<p><b>Use of everyday materials Y2</b> identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses</p> <p>find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching</p>	<p>Exploring how to change the volume and pitch of a sound during music lessons.</p>	<p>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</p>		
		<p><b>Vocabulary</b> Brass, echo, insulation, instrument, percussion, pitch, sound source, sound wave, string, travel, tune,</p>		

		tuning fork, vibration, volume, woodwind		

## ASPIRATIONS FOR THE FUTURE

Pupils develop an understanding of how subjects and specific skills are linked to future jobs. Here are some of the jobs you could aspire to do in the future as a Historian:

**Forester, Farmer, Landscape Architect, Town & Country Planner, Surveyor, Geologist, Marine Biologist, Helicopter Mission Controller, Teacher**

## Our feeder high school KS3 snapshot Science curriculum

<p><b>Jane Austin</b> Biology, Chemistry and Physics are studied each term through a clear grid. We open students' minds to a broad, deep knowledge and understanding of the world around them. We enable students to think logically about everyday situations and be able to rationalise new concepts.</p>	<p><b>Open Academy</b> We run a five year science curriculum that builds our students' knowledge and skills, continually revisiting topics, adding complexity and depth each year. This enables all students to receive a well-rounded science education and allows those with a keen interest in science to become specialists in biology, chemistry or physics.</p>
<p><b>Sprowston Community Academy</b> The Key Stage 3 curriculum lasts for 2 years and 2 terms and follows the National Curriculum for Science . Our aim is to cover a broad range of knowledge and skills to develop young people's understanding of the scientific method and their place in the Universe. Through analysis of development of scientific models, pupils develop a critical understanding of their impact on daily life and the wider world.</p>	<p><b>The Hewitt Academy</b> Biology, Chemistry and Physics are studied each term through a clear subject grid.</p>
<p><b>CNS</b> In Key Stage 3 we follow the National Curriculum for Science. Biology , Chemistry and Physics are taught. These subjects are taught 2 at a time each term.</p>	<p><b>City Academy</b> Science lessons at KS3 are designed to build the bridge between the knowledge, skills, and techniques introduced at Key Stage 2 and their GCSEs. Our KS3 curriculum is currently in transition as we adopt the Bohunt Education Trust scheme of learning, allowing us to share expertise and provide students with the best possible teaching. As such, in Year 7 content is delivered under the heading of 7 different topics, whereas 20 separate topics are delivered in Year 8, under the heading of 10 big ideas.</p>
<p><b>Ormiston Victory Academy</b> In Key Stage 3 we follow the National Curriculum for Science. at Key Stage 3 covers a wide range of different topics that allow students to build a foundation of knowledge that will help develop their skills and allow them to access</p>	<p><b>Sewell Park Academy</b> In Key Stage 3 we follow the National Curriculum for Science. To give students context and a sense of intrigue, in some topics, a student will be introduced to a "Big Idea" related to that topic.</p>

<p>the more difficult topics that are covered at Key Stage 4. At OVA, we have built a scheme of learning that follows the national curriculum to ensure that students have access to the widest curriculum possible. Our aim is to inspire students to attempt to discover things in the world around them and explain the things that they observe.</p> <p>Students cover different topics in year 7 and year 8. To ensure that students always have access to enough equipment to carry out practicals, different classes will be doing different topics at different points of the year.</p>	<p>Students will be given the opportunity to develop their literacy skills in Science primarily through the use of “Talking technical” tasks, where students create an extended writing piece on a topic using key words that they have learnt. For each of the 12 to 18 topics for each subject, the students will be exposed to 4 careers that relate to, and require knowledge and skills from that topic.</p>
<p><b>Hellesdon High School</b></p> <p>The Science team is a large, energetic and diverse department made up of 14 teachers and 4 technicians. Lessons are taught in one of eleven large laboratories all of which are well equipped and allow our pupils to enjoy regular practical lessons. We believe that by teaching good lessons, encouraging hard work and embedding core knowledge, all pupils are able to make good progress. Our all-through curriculum is designed so that students of all abilities make good progress in developing skills, whilst forming and maintaining robust and solid subject knowledge. There is regular spiralling of learning, where topics are regularly revisited to develop and maintain knowledge</p>	<p><b>Notre Dame High School</b></p> <p>KS3 Science will give you a broad knowledge of Biology, Chemistry and Physics topics. From learning about the human body, to chemical equations to energy processes, Science is a subject that is hugely varied.</p> <p>Whilst studying science you will develop your maths, data handling, research, practical and communication skills.</p>
<p><b>Thorpe St Andrew School</b></p> <p>Our curriculum in Science springs from our ethos statement, Excellence for All. We aim to establish the very best scientists. For those not proceeding with a scientific career beyond GCSE, we intend to give them the best education to be able to understand the world around them and engage with the Science around us. An example would be for our students to be able to understand the Science involved in the Covid-19 pandemic. The rationale behind our curriculum design is the choice of the order we teach topics which provides students with the opportunity to practice their skills alongside the knowledge they are gaining.</p>	<p><b>Norwich School</b></p> <p><b>Biology</b> - Pupils in Lower and Upper 4 receive one double Biology lesson a week, lasting 80 minutes. The course followed is Exploring Science International 11-14 from Pearson Education. The topics covered include the Skeletal System, Cells and Organ Systems, Microbiology, Ecology and an introduction to Genetics. A one-day ecology fieldwork visit is undertaken by all pupils in U4.</p> <p><b>Chemistry</b> – Pupils learn about particle theory, investigating the periodic table and considering how and why chemical reactions occur. Pupils attend a weekly Chemistry lesson which is augmented by at least one corresponding practical activity. Cross-curricular links are established with the other sciences and beyond - for example, exploring the history of Chemistry in the context of the development of new theories.</p> <p><b>Physics</b> - In Lower 4, pupils study magnets, stars &amp; planets, practical circuits, and heat. We do not expect pupils at this age to memorise a lot of new facts; instead, the focus is on experiment and scientific thinking. Pupils gradually acquire confidence in the laboratory, and develop habits of safe and accurate measurement. Pupils cover the detection of sound (by the ear and by microphones), the detection of light (by the eye and by LDRs and other devices), what's in an atom, floating and sinking, independent research into either 21st-century materials or astrophysics, and energy in electric circuits. Here there is a little more factual content but also a more rigorous approach to experimentation, with a focus on instruments and good techniques.</p>