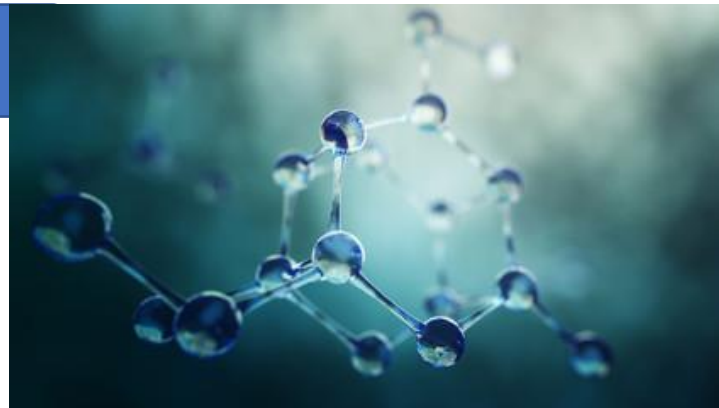


Science

At the heart of our science curriculum is the desire to build a secure knowledge of the world around us. We do this by systematically building up the students' schema of knowledge about the World. In doing so, we believe we will provide our students with a strong knowledge foundation which will equip them for their future science learning. As well as enabling them to pursue an area of science in which they are particularly interested and give them the tools to meaningfully make progress in this pursuit.










First and foremost, we have used the national curriculum to ensure we covered the core basics. We have carefully sequenced these topics such that they build well at spaced intervals to enable greater retention. As a result, in places the sequence does not follow the National Curriculum but has been designed to be age and stage appropriate. Where it enables a greater understanding of the topic, our science curriculum moves beyond the national curriculum. The terms are roughly split into biology, chemistry and physics topics to begin to set our students with an understanding of those parts of science in preparation for secondary school.

Practical investigation skills are interwoven into the content and are often built into the climax of each topic to enable students to apply the knowledge they have just gained. This also means that the core structure of a science investigation is repeated and reinforced throughout the Key Stage. The year 6 content will both review content from previous years as well as providing a brief introduction to some of the themes present in secondary science. This enables this core content to be reinforced as well as easing the transition of year 6 pupils into science at secondary school.



	Block 1	Block 2	Block 3	Block 4	Block 5	Block 6
Year 1	Seasons and Weather	Materials	The Animal Kingdom	Building Things	Sound and Senses	Plants
Year 2	Habitats	Changing Materials	Space	Human Lifestyles	Light	Mixing & Making
Year 3	Practical Skills	Raw & Synthetic Materials	Sound	Forces and Magnets	Plants	Ecosystems
Year 4	Phases of Matter	The Rock Cycle	Light	Space	Adaptations	Human Anatomy
Year 5	Separating Mixtures	Physical & Chemical Changes	Magnetism	Electrical Circuits	Humans & Animals Over Time	Reproductive Cycles
Year 6	Chemical Reactions	Sustainability	Heat	Energy	Cells	Diet & Lifestyle

Progression and Coverage of Key Concepts

	EYFS	1	2	3	4	5	6
Plants 	Explore the natural world making observations and drawing pictures of plants.	Plants		Plants		Humans & Animals Over Time	Cells
Animals including Humans 	Explore the natural world making observations and drawing pictures of animals. Manage their own basic hygiene, understand the importance of healthy food choices.	Sound and My 5 Senses The animal Kingdom	Human Lifestyle		Human Anatomy	Humans & Animals Over Time Reproductive Cycles	Cells Diet and Lifestyle
Materials & Matter 	Understand some important processes and changes including changing states of matter.	Materials Building Things	Using & Changing Materials Light Mixing & Making	Raw & Synthetic Materials	Phases of Matter	Separating Mixtures Physical & Chemical Changes	Heat Chemical Reactions
Earth & Space 	Understand the seasons	Seasonal Changes	Space Light		Rock Cycle Space		Sustainability
Living Things and their Habitats 	Know some similarities and differences between the natural world around them and contrasting environments.		Habitats	Ecosystems	Adaptations		
Light & Sound 	Describe what they see, hear and feel.	Sound and My 5 Senses	Light	Sound	Light		
Forces and Magnets 				Forces		Magnetism	
Electricity & Energy 						Electrical Circuits	Heat Energy
Sustainability 				Raw and Synthetic Materials Ecosystems		Reproductive Cycles	Sustainability

Ellistown Science Knowledge and Skills Progression


















Key Concepts in Science

Plants 	Animals Including Humans 	Materials & Matter 	Planet Earth & Space 	Animals & Habitats 	Light & Sound 	Forces & Magnetism 	Electricity & Energy 	Sustainability 
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	1	2	3	4	5	6
Autumn 1	Seasons and Weather  What do we know about the weather? How does the weather change across the seasons? How do trees change across the seasons? How can you measure rainfall? What is hibernation? How can we record wind direction?	Habitats  What are the characteristics of living things? What is a habitat? What is a microhabitat? What lives in a desert habitat? What lives in a rainforest habitat? Can a city be a habitat?	Practical Skills What is a variable? How do you draw a scientific diagram? Why is a method important? What can we do with the data we collect? How can we communicate our results? How can we record an entire investigation?	Phases of Matter  What are the properties of solids, liquids and gases? How do particles behave inside of solids, liquids and gases? What happens when you heat or cool each state of matter? What are changes of state and why do they take place? How can we measure the melting points and boiling points of a substance? Which substances do not fit into one state of matter?	Separating Mixtures  What makes something pure? What makes something a mixture? What is a formulation? How can we separate mixtures into pure substances? How can you separate a mixture of sand, salt and water? How can we separate river water into separate parts?	Chemical Reactions  How do particles in solids liquids and gasses behave? What do the particles in pure substances and mixtures look like? What happens to particles during dissolving? How can mixtures be separated? How can we tell when a chemical reaction has taken place? What happens to particles during burning?
	Materials  What is a material? What are objects made from? How can I describe an object? Which materials float and sink? Which materials are absorbent? Which material is best for different objects?	Using & Changing Materials  Which material should I use? How can the shape of solid objects be changed? Which material is the stretchiest? Which materials are absorbent? What is the difference between raw and synthetic materials? Why do we change materials?	Raw & Synthetic Materials  What is a raw material? What is a synthetic material? How are synthetic materials made from raw materials? How is paper made? What is recycling and why is it important? What does it mean to live sustainably?	The Rock Cycle  How is igneous rock formed? How is sedimentary rock formed? How is metamorphic rock formed? How can we identify different rocks? How do rocks on our Earth's surface change? What are the steps in the rock cycle?	Physical & Chemical Changes  What happens during a state change? What is a physical change and how can we identify them? What is a chemical change and how can we identify them? How do physical and chemical changes compare? What can we do to investigate chemical reactions? What happens when we place metals into acid?	Sustainability  What are everyday materials made from? Why is recycling important? What is a life cycle assessment? What happens when fuels are burnt? What is global warming? What is climate change?
Spring 1	The Animal Kingdom  What is a living thing? What is the difference between an invertebrate and a vertebrate? Which animal families are invertebrates? Which animal families are vertebrates? What are the differences between mammals and birds? What types of food do living things eat?	Space  What is Space? What are the planets in our solar system? How does the Earth orbit and rotate? What are constellations? When and how was space discovered? What kind of scientists study space?	Sound  What is sound? How are different sounds produced? What are frequency and pitch? What do we mean by amplitude of sound? How do scientists design objects that use sound? What are some of the uses of sound?	Light  What is light and where does it come from? What is reflection and how can we use it? What is refraction and how can we use it? How do we see light? Where do different colours come from? What are some uses of light?	Magnetism  What are non-contact forces? What are magnets? How does a compass work? How can we see a magnetic field? How can we tell if a material is magnetic or not? What are some uses of magnetic materials?	Heat  What happens when you heat particles? Why does heat cause expansion in a substance? What is thermal equilibrium? How is heat transferred between particles? What are thermal conductors and insulators? How can we prevent heat from getting to an ice cube?

Key Concepts in Science

Plants 	Animals Including Humans 	Materials & Matter 	Planet Earth & Space 	Animals & Habitats 	Light & Sound 	Forces & Magnetism 	Electricity & Energy 	Sustainability 
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	1	2	3	4	5	6
Spring 2	Sound and My 5 Senses  What are the different parts of the human body? What are the 5 senses? Why do foods have different tastes? How do we hear? How do we look after our ears? How can we make and describe different sounds?	Human Lifestyle  What are the different parts of the human body? Why is exercise so important? What is a healthy diet? How do our bodies change as we get older? Why is it important to be hygienic? Whose job is it to keep us healthy?	Forces  What are forces? How can we measure the size of forces? What are contact forces? What are noncontact forces? What factors affect an object's ability to float? What impact do gears, levers and pulleys have on forces?	Space  What are solar and lunar eclipses? What is the solar system? What do the planets in the solar system differ? What are stars and star constellations? What is the universe and what is it made from? What do astronomers do?	Electrical Circuits  What is static electricity? What are the parts of an electrical circuit? What are circuit diagrams? What are electrical insulators and conductors? What happens in a circuit when we change the components? How can we create a circuit to build a buzzer game?	Energy  What are energy stores? What is energy transformation? What is efficiency and how can it be calculated? What is power and how does it apply to electrical appliances? How do we relate speed, distance and time? How can we calculate kinetic energy?
Summer 1	Building Things  Which materials are waterproof? Which material could I use to build a wall? Is the wall I've built waterproof? Which materials can withstand strong winds? Will the wall I've built withstand strong winds? What is a mixture?	Light  What is light? How can we see objects? What is the difference between night and day? Which materials are reflective? How are shadows formed? How can you change the size of a shadow?	Plants  What conditions could we change to investigate the growth of a plant? What happens to a plant's growth if we change the conditions it is in? What are the main parts and functions of a flowering plant? What are the parts of a plant's life cycle? How does a plant transport water? How do plants adapt to different conditions?	Adaptations  What is an adaptation? How are organisms adapted to hot environments? How are organisms adapted to cold environments? What adaptations do nocturnal animals have? How are organisms adapted to live underwater? How are organisms adapted to live in the deep sea?	Humans & Animals Over Time  Why do plants have flowers? How do you clone a potato? How does the lifecycle of an insect compare to an amphibian? Are the life cycles of all mammals the same? Why do birds lay eggs? How do lifecycles compare across the animal kingdom?	Cells  What is the difference between living and non-living things? What are the main organ systems of the body? What are organ systems, organs, tissues and cells? What are animal cells? What are plant cells? What are specialised cells?
Summer 2	Plants  How do I plant a bean? What type of plants grow in the wild? What is the difference between deciduous and evergreen trees? What are the parts of trees and plants called? What changes occur to a tomato plant? What changes have occurred to my bean plant?	Mixing and Making What are the differences between solids, liquids and gases? What happens when you heat a solid? Which mixture makes the best bubbles? What happens when I mix a solid and liquid together? How can I separate a mixture? Are there some changes we can't reverse?	Ecosystems  What is an ecosystem? How do we classify the diets of animals? Why are producers so important? How do we construct a food chain? How do we construct a food web? What can cause disruptions to food webs?	Human Anatomy  What are the major bones in the human body? What are organs and why do we need them? How does human anatomy compare to other animals? Are all teeth the same? How is oxygen transported around our bodies? How do humans digest food?	Reproductive Cycles  What is the theory of evolution? How do fossils provide evidence for evolution? How have different animal kingdoms developed over time? Which types of organism have lived over each era of time? What impact have homo sapiens had on the organisms over time? What is the likely impact of humans on organisms in the future?	Diet & Lifestyle  What are the key parts of a healthy diet? Why do people with different lifestyles need different diets? What effect does exercise have on the muscles? What happens to the circulatory system during exercise? What are medicinal drugs? What are nicotine and alcohol?