



Our Science Curriculum

From tiny seeds beautiful minds blossom and grow...



Developed with reference to



Science Curriculum Intent

Science has been designated a core subject of the national curriculum, alongside mathematics and English. As such, a science education forms an important entitlement for all young people.

At East Herrington Primary Academy we believe in delivering a science curriculum which stimulates and excites pupils' curiosity about phenomena and events in our rapidly evolving world. All children are given opportunities to be 'hands-on' and discuss science-based issues that may affect their future world. We strongly believe that a highly engaging science curriculum can foster excellent outcomes for all children. We believe in developing future scientists by building both substantive and disciplinary knowledge. We ensure that all children are introduced to the vast range of careers which are supported by our science curriculum and we support those with an interest in developing this subject further.

Science Curriculum Implementation

- Provide engaging, hands-on lessons which capture children's interest.
- Allow children to ask their own investigation questions which they plan and carry out in science, especially in UKS2.
- Encourage children to discuss what they would like to know at the beginning of science topics and, where appropriate, cover these within the unit of work.
- Clear and comprehensive scheme of work developed by science consultant and continuously evaluated and adapted to the needs of the children in our school.
- Dual objectives are used in all science lessons to develop children's substantive and disciplinary science knowledge.
- Science concepts (models) are introduced and built upon in all KS2 topics.
- Prior learning and key knowledge documents will ensure teachers are aware of science topics previously taught and ensure links are made and learning is progressive, starting in EYFS.
- CPD provided for staff to ensure consistency throughout the school.
- Assessments carried out at the end of each topic.
- Events such as Science Week allow all pupils to come off-timetable, to provide broader provision and the acquisition and application of knowledge and skills.
- Research of many different and diverse scientists working in a range of scientific fields during science week.
- After school clubs such as STEM club and Eco club introduce children to different types of science and challenges them to apply different subjects to be able to solve problems.
- Beginning to develop links with local industry to further reinforce the place and importance of science in the real life and showcase career opportunities.

Science Curriculum Impact

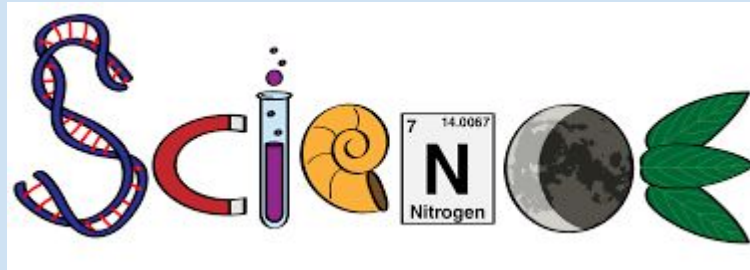
- Through engaging and challenging lessons, children enjoy and are enthusiastic about science.
- Children continue to enjoy science and always strive to know more because they lead their own learning and answer questions that they want to know the answer to.
- Children have the ability to drive their own learning by planning and carrying out scientific investigations which they find interesting.
- As a result of providing a rich and varied curriculum, all of our children are able to succeed.
- Building children's substantive and disciplinary science knowledge allows expert scientists to be developed.
- Introducing children to key concepts in Year 3 and building on these throughout KS2 will enable children to develop scientific explanations.
- Children will continue to build on prior learning and will be able to explicitly make connections between current and prior learning, science topics and different subjects.
- Children will meet age related expectations. Those children working below expectations will be appropriately supported within lessons and progress tracked.
- Teachers will assess children at the end of units of work and feed this information into the next unit of work ensuring all children are making appropriate progress.
- Access to activities which go beyond the National Curriculum allows children to be introduced to different scientific fields e.g. STEM club and Eco Club.
- Research into scientists enables children to relate to them as role models and be able to see themselves pursuing a science based career.
- Children who attend STEM club are aware of STEM careers and the high demand in the North East.
- Upper Key Stage 2 STEM club children have opportunities to make links with local industries to support children wishing to pursue a STEM career.

Talk like a Scientist

Sentence Stems

- It is...because...
- It will...because...
- How do you know (e.g. 'The porridge is hot')?
- I think this...because...
- I know this, so I think...
- This will happen because...
- What do you think?
- What will happen if...?
- I know that.... Therefore, I know that...
- Due to the fact that..., I know that...will happen.
- Maybe it's because...
- It is true that...
- Having analysed..., I believe that...
- I can prove how I know this because...
- Can we prove that...?
- In conclusion, I have found that...
- I would like to prove / disprove...
- Perhaps the reason is ...
- Based on the evidence I have been presented with, I conclude...
- Taking everything into account...
- Having pondered...
- Given this, it is likely that...
- If we accept this hypothesis, what else will be true?

EYFS



Our main link to Science is within our 'Understanding the World' area of learning :

3-4 years old	Understanding The World	Use all their senses in hands-on exploration of natural materials. Explore collections of materials with similar and/or different properties. Talk about what they see, using a wide vocabulary. Explore how things work. Plant seeds and care for growing plants. Understand the key features of the life cycle of a plant and an animal. Begin to understand the need to respect and care for the natural environment and all living things. Explore and talk about different forces they can feel. Talk about the differences between materials and changes they notice. Talks about why things happen and how things work Developing an understanding of growth, decay and changes over time Shows care and concern for living things and the environment Begin to understand the effect their behaviour can have on the environment
Reception	Understanding The World	Explore the natural world around them. Describe what they see, hear and feel while they are outside. Recognise some environments that are different to the one in which they live. • Understand the effect of changing seasons on the natural world around them. Looks closely at similarities, differences, patterns and change in nature Knows about similarities and differences in relation to places, objects, materials and living things. Makes observations of animals and plants and explains why some things occur, and talks about changes
ELG	Understanding The World	The Natural World Explore the natural world around them, making observations and drawing pictures of animals and plants. Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. • Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

Other areas of learning that may link to science:

3-4 year olds	Physical Development	Make healthy choices about food, drink, activity and toothbrushing.
3-4 year olds	Communication and Language	Understand 'why' questions, like: "Why do you think the caterpillar got so fat?"
3-4 year olds	Expressive Arts and Design	Explore different materials freely, in order to develop their ideas about how to use them and what to make. Develop their own ideas and then decide which materials to use to express them. Join different materials and explore different textures.
Reception	Communication and Language	Learn new vocabulary. Ask questions to find out more and to check what has been said to them. Articulate their ideas and thoughts in well-formed sentences. Describe events in some detail. Use talk to work out problems and organise thinking and activities. Explain how things work and why they might happen. Use new vocabulary in different contexts.
ELG	Communication and Language	Make comments about what they have heard and ask questions to clarify their understanding.
ELG	Expressive Arts and Design	Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.
ELG	Personal, Social and Emotional	Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices.

Observe, explore and talk about seasonal changes.

Read and share non-fiction books to develop knowledge.

Use ICT to support investigations and to extend learning.

Plant, observe and look after seeds, bulbs and plants.

Explore materials and their properties through building and constructing.

How we do this in our provision...

Introduce new vocabulary linked to topics.

Make collections of natural materials to investigate and talk about.

Use observational skills to observe and draw a variety of animals, flowers and plants.

Begin to evaluate materials and their properties by choosing the best materials to use when building and creating.

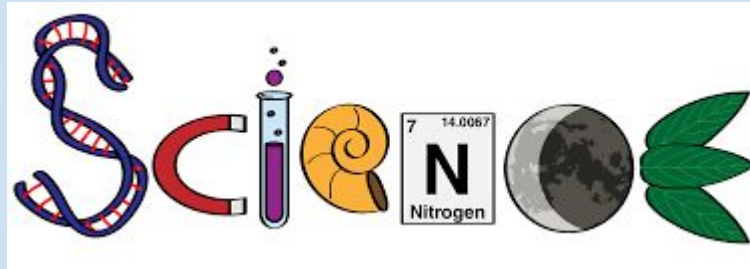
Identify, name and explore a variety of animals in small world play.

Visit a farm to identify and observe animals in their natural environment.

Explore and investigate mechanical equipment (wind up toys and cogs).

Observe and explore change through melting, freezing and cooking.

Year 1



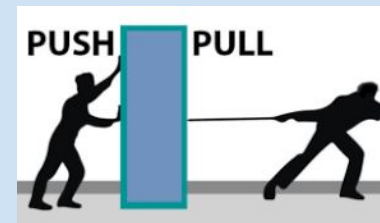
Science: Materials

Learning Objectives	Vocabulary	Skills	Enquiry Type
L.O. to know what everyday objects are made of.	Solid, bending, squashing, twisting, stretching, similarity, difference, property, hard/soft, shiny/dull, bendy/not bendy, stretchy/stiff, transparent/opaque, rough/smooth, waterproof/not waterproof, absorbent/not absorbent, metal, plastic, glass, brick, paper, fabric, foil, elastic, wood	L.O. to add science words and labels to diagrams Remember some science facts and words.	<u>Comparative and Fair Test</u> Which material is best to build a house from?
L.o. to know what old and new toys are made from and why. Can you name everyday materials?		L.O. to remember simple science fact Remember some science facts and words.	
L.o. To describe the properties of an object. What are the properties of materials?		L.O. to use and remember some science facts and words Add science word labels to diagrams.	
L.O. to sort objects by materials.		L.O. to sort using yes/no statements	
Enquiry - comparative and fair test Which materials would be best and why?		L.O. to link properties of a material to an application	
Enquiry - comparative and fair test Which materials would be best and why?		L.O. to link properties of a material to an application	



Science: Forces (Pushes and Pulls)

Learning Objectives	Vocabulary	Skills	Enquiry Type
L.O. to recognise different forces How do you move things?	Push, pull, force, movement, light, heavy, lighter, heavier, more, less, direction	L.O. to add science word labels to diagrams Describe what is happening using science.	<u>Comparative and Fair Test</u> How can we make objects move further?
L.O. to know how forces are used How do you move things?		L.O. to describe what is happening using science	
L.O. to know how objects move How can we make objects move further?		L.O. to use and remember science words Suggest what might happen.	
Enquiry - Comparative and Fair Test How can we push heavy objects?		L.O. to suggest what might happen Add science word labels to diagrams	
Enquiry - Comparative and Fair Test		L.O. to describe what is happening using science L.O. to suggest what might happen	
Enquiry - Comparative and Fair Test		L.O. to describe what is happening using science	



Science: Animals Including Humans

Learning Objectives	Vocabulary	Skills	Enquiry Type
L.O. to know that there are different types of animals	Animals, Invertebrate (worm, spider, insect (various), woodlouse, centipede), fish, amphibian, reptile, bird, mammal, carnivore, herbivore, omnivore, head, neck, arm, elbow, hand, leg, knee, foot, face, ear, nose, eye, hair, mouth, teeth, sight, hear, smell, touch, taste	L.O. to group by difference and similarity	<u>Identifying, Classifying and Grouping</u> How can we group animals based on what they eat?
L.O. to identify what is different and what is the same		L.O. to group by difference and similarity	
L.O. to know that animals feed in different ways		L.O. to sort using simple yes/no statements	
L.O. to know the parts of the body		L.O. to add science word labels to diagrams	
L.O. to know what our senses are		L.O. to use and remember science words	
Enquiry: Identifying, Classifying and Grouping		L.O. to remember some simple science facts	



Science: Light and Shadows

Learning Objectives	Vocabulary	Skills	Enquiry Type
L.O. to know where light come from?	Light, dark, lighter, darker, light source (various), light ray, shadow, day length	L.O. to describe what is happening using science	<u>Research using secondary sources</u> How can we stay safe in the light and the dark?
L.O. How can we make a light place dark/a dark place light?		L.O. to use a table to record in numbers and words L.O. to use a frame to create a pictogram	
L.O. to know how we find shadows?		L.O. to use science words	
Enquiry: Research using secondary sources Are all shadows the same?		L.O. to predict what might happen L.O. to use a frame to create a pictogram	
Enquiry: Research using secondary sources How can we stay safe in the light and dark?		L.O. to remember some science facts	
Enquiry: Research using secondary sources How can we stay safe in the light and dark?		L.O. to describe what is happening using science	



Science: Plants

Learning Objectives	Vocabulary	Skills	Enquiry Type
L.O. What are the parts of a plant?	Plant, roots, stem, trunk, branches, leaves, flower (petals), fruit, bulb, seed, evergreen, deciduous, vegetables, (variety of common plant names, e.g. geranium, dandelion, oak, bean)	L.O. to add science word labels	<u>Research using secondary sources</u> Which trees grow in our local area?
L.O. Can you name different types of plant?		L.O. to group by difference or similarity	
Investigation Lesson Which trees grow in our local area?		L.O. to describe what is happening using science	
L.O. to know how trees survive in the Winter		L.O. to remember science words	
L.O. to know where I can find plants		L.O. to group by similarity or difference	
L.O. to know where plants live		L.O. to remember and use science facts	

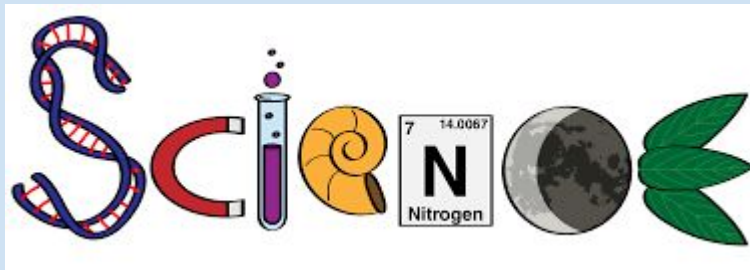


Science: Seasons

Learning Objectives	Vocabulary	Skills	Enquiry Type
Enquiry: Observation over time How do habitats change over the seasons?	Season, sun, sky, autumn, winter, spring, summer, year, month, week, day, weather (various), temperature, weather, rainfall, daylength, sun, shadow, blockcharts	L.O. to make predictions	<u>Observation over time</u> How do habitats change over the seasons?
L.o. to know what weather is		L.O. to remember simple science facts	
L.O. to understand how we know what weather will be like		L.O. to use and remember science words	
L.O. To know what the seasons are		L.O. to remember simple science facts	
L.O. to understand how the seasons affect what we do		L.O. to describe what is happening using science	
Enquiry: Observation over time		L.O. to use a simple table	



Year 2



Science: Living things and their habitats

Learning Objectives	Vocabulary	Skills	Enquiry Type
L.O. To know the seven characteristics of Living Things.	Living, dead, non-living, movement, making energy (respiration), sensitivity, growth, reproduction, getting rid of waste (excretion), nutrition, habitat, microhabitat, adapted, adaptation, conditions, light, temperature, water, humidity, food chain	L.O: To use and remember science words over time	<u>Research using secondary sources</u> Which animals live in the Kalahari desert?
L.O. To know what makes something 'Living'		L.O: To use and remember science words over time	
L.O. To identify if something is 'living, dead or never been alive'.		L.O. To group using differences, similarities or changes	
L.O. To know what a habitat is.		L.O: To use and remember science words over time	
L.O. To understand how living things are suited to their own habitat		L.O: to use a spider key	
Research - What animals live in the Kalahari desert?		L.O. To add labels and information to diagrams.	
L.O. To know what a food chain is.			

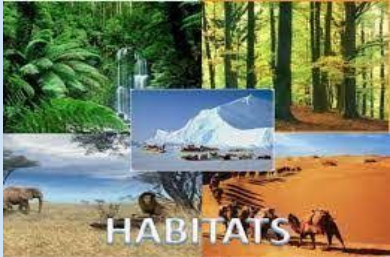


Science: Animals including Humans

Learning Objectives	Vocabulary	Skills	Enquiry Type
L.O. To know what happens to our bodies as we grow.	Growth, reproduction, offspring, life-cycle (stages for examples, e.g. human, frog, butterfly, etc), baby, offspring, toddler, child, teenager, adult, water, food (nutrition), air (breathing, respiration), diet, balanced, obesity, starvation, exercise, fitness (heart rate/pulse), hygiene, microbes (bacteria, fungi, viruses)	L.O: To use a simple table by recording in numbers	<u>Identifying, Classifying and Grouping</u> How can we group foods?
L.O. To know what happens to our bodies as we grow.		L.O: To use a simple table by recording in numbers	
L.O. To know if other animals grow in the same way as us.		L.O: To use and remember science words over time	
L.O. To know what we need to live and be healthy.		L.O: to construct block charts	
L.O. To know why it is important to exercise.		L.O: to use a simple table	
L.O. To know why it is important to keep clean.		L.O: to remember facts about science	



Science: Living Things

Learning Objectives	Vocabulary	Skills	Enquiry Type
L.O: To identify what living things need to survive	Living, dead, non-living, movement, making energy (respiration), sensitivity, growth, reproduction, getting rid of waste (excretion), nutrition, habitat, microhabitat, adapted, adaptation, conditions, light, temperature, water, humidity, food chain	L.O. To remember science facts with confidence.	<u>Pattern Seeking</u> Do our different body parts grow as we get older? 
L.O. To learn about an animal habitat		L.O. To use and remember science words over time.	
L.O. To learn about microhabitats		L.O. To use and remember science words over time.	
L.O. To find out if other animals grow in the same way as us		L.O. To remember words and facts about science	
L.O: to understand what happens to our bodies as we grow Investigation - Do our different body parts grow as we get older?		L.O. To use a simple table by recording in numbers	
L.O: to understand what happens to our bodies as we grow Investigation - Do our different body parts grow as we get older?		L.O. To remember science facts with confidence	

Science: Materials

Learning Objectives	Vocabulary	Skills	Enquiry Type
L.O. To understand what things are made from	Material types (e.g. wood, metal, plastic, wool, cotton, paper, cork, rock, etc), solid, liquid, gas, waterproof, hard, soft, flexible, stretch, bend, twist, squash, shiny, dull, warm, cold, colour, more, less, fluid, flow	L.O. To link properties to an application	<u>Comparative & Fair Test</u> Which material is best for Paddington's coat?
L.O: to understand that different materials have different properties		L.O. To use a range of equipment correctly	
L.O: to understand that different materials have different properties		L.O. To use a range of equipment correctly	
L.O. To learn if we can change the shape of materials		L.O. To group by difference, similarity or change	
L.O. To learn if we can change the shape of materials		L.O. To group by difference, similarity or change	
L.O: to learn about solids, liquids and gases.		L.O. To follow instructions	



Science: Plants

Learning Objectives	Vocabulary	Skills	Enquiry Type
L.O: to learn how plants grow and to identify and name the parts of a plant.	Grow, seed, bulb, (tuber), leaf, root, stem, flower, fruit, germination, seedling, water, light, temperature, reproduction	L.O: to follow instructions and to add science labels to my observational drawing.	<u>Observation over time</u> How does a plant change as it grows?
L.O: to understand what conditions plants need to grow.		L.O: Suggest an idea to test from observations	
L.O: to understand what conditions plants need to grow.		L.O: to follow instructions.	
L.O: to understand what conditions plants need to grow.		L.O. To describe patterns in data	
L.O: to understand what conditions plants need to grow.		L.O. To explain what a fair test is L.O. to describe patterns in data.	
L.O: to understand what conditions plants need to grow. Enquiry - How does a plant change as it grows?		L.O. To identify variables L.O. to describe patterns in data.	



Science: Electricity/Building Circuits

Learning Objectives	Vocabulary	Skills	Enquiry Type
L.O: to understand where we use electricity in our home. Enquiry - How can we group appliances?	Circuit, appliance, main supply, battery, wire, bulb, buzzer, component, connector, closed, (series), electricity, flow/transfer	L.O: to group by difference, similarity or change. .	<u>Identifying, Classifying and Grouping</u> How can we group appliances?
L.O: to learn how to use electricity safely.		L.O: to understand the meanings of new scientific vocabulary. L.O. List common dangers to safe working	
L.O: to learn about a circuit		L.O: to suggest what might happen in an investigation.	
L.O: to learn about the parts of a circuit.		L.O: to group by difference, similarity or change. .	
L.O: to construct a simple circuit		L.O: to use a diagram to explain. L.O. To follow spoken and written instructions.	
L.O: to identify a complete circuit (with electrical symbols).		L.O: to suggest an idea to investigate and to come to a conclusion from observations.	



Year 3



Science: Plants (1)

Learning Objectives	Vocabulary	Skills	Enquiry Type
L.O. to name and explain the parts of a flowering plant.	Grow, seed, bulb, (tuber), leaf (petiole), root (root hairs), stem, flower (petals, sepals, stamens, ovary, pollen, eggs), fruit, germination, seedling, water, light, temperature, nutrients, reproduction, pollination (wind, insect), fertilisation, seed, dispersal	L.O. to begin to use a science model to describe.	<u>Observation over time</u> How does water travel up the stem to the flowers?
L.O. to name and explain the parts of a flowering plant.		L.O. to begin to use a science model to describe.	
L.O. to understand what conditions plants need to grow.		L.O. to describe patterns in data, charts and graphs.	
L.O. to understand what conditions plants need to grow.		L.O. to describe patterns in data, charts and graphs.	
L.O. to explain how water gets around plants.		L.O. to describe patterns in data, charts and graphs. L.O. to describe results by linking cause and effect	
L.O. to explain how water gets around plants. Enquiry - How does water travel up the stem to the flowers?		L.O. to describe patterns in data, charts and graphs. L.O. to describe results by linking cause and effect	



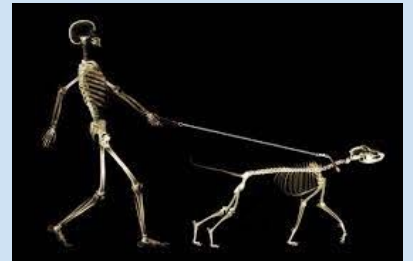
Science: Plants (2)

Learning Objectives	Vocabulary	Skills	Enquiry Type
L.O. to name the parts of a flower.	Grow, seed, bulb, (tuber), leaf (petiole), root (root hairs), stem, flower (petals, sepals, stamens, ovary, pollen, eggs), fruit, germination, seedling, water, light, temperature, nutrients, reproduction, pollination (wind, insect), fertilisation, seed, dispersal	L.O. to begin to use science models to describe.	<u>Observation over time</u> How does water travel up the stem to the flowers?
L.O. to understand and explain why plants have flowers.		L.O. to begin to use science models to describe.	
L.O. to describe and explain pollination.		L.O. to remember science words	
L.O. to describe and explain pollination.		L.O. to remember science words	
L.O. to explain how plants spread their seeds.		L.O. to identify cause and effect in investigations.	
L.O. to explain how plants spread their seeds.		L.O. to identify cause and effect in investigations.	



Science: Animals including humans

Learning Objectives	Vocabulary	Skills	Enquiry Type
L.O. to explain what animals need to eat to stay healthy.	Nutrition, nutrients, diet (balanced/unbalanced), sugar, protein, fat, vitamins, minerals, water, energy, oxygen, feeding, eating, photosynthesis, circulation, blood, heart, vertebrate, invertebrate, skeleton (simple examples of bones), support, protection, movement	L.O. to begin to use a science model.	<u>Identifying, Classifying and Grouping</u> How do the skeletons of different animals compare?
L.O. to understand and explain what a balanced diet is.		L.O. to begin to use a science model. L.O. to use frames to construct tables and bar charts	
L.O. to understand and explain what a balanced diet is.		L.O. to begin to use a science model. L.O. to use frames to construct tables and bar charts	
L.O. to understand and explain why animals have skeletons.		L.O. to remember science words.	
L.O. to understand and explain why animals have skeletons.		L.O. to remember science words.	
L.O. to understand and explain how animals move.		L.O. to begin to use a science model.	



Science: Rocks

Learning Objectives	Vocabulary	Skills	Enquiry Type
L.O. to know that there are different types of rocks.	Rock (types), smooth, shiny, rough, crumbly, grainy, crystals, hard, soft, cold (etc), fossil (types), sediment, layers, pressure, soil, organic matter, vegetation, compost	L.O. to create groups for sorting	<u>Research using secondary sources</u> How are fossils formed?
L.O. to know that there are different types of rocks.		L.O. to create groups for sorting	
L.O. to know that rocks have lots of uses.		L.O. to combine properties required for an application.	
L.O. to know how fossils are formed. Enquiry - Research how fossils are formed.		L.O. to begin to use a science model to help describe	
L.O. to know that soils are made from rocks and organic matter.		L.O. to remember science words used before	
L.O. to know that soils are made from rocks and organic matter.		L.O. to remember science words used before	



Science: Forces and Magnets

Learning Objectives	Vocabulary	Skills	Enquiry Type
L.O. To know what a force is L.O. To be able to identify forces	Force, push, pull, contact force, distance force, gravity, force arrow, movement (associated terminology), magnetic, magnetism, poles (north, south), attract, repel, non-magnetic	To begin to use a science model to describe	<u>Pattern Seeking</u> Does the size and shape of a magnet affect how strong it is?
L.O. To find out how objects move on different surfaces. How can we show and measure contact forces?		To select suitable equipment and predict cause and effect linked to friction. To carry out an investigation Predict cause and effect.	
L.O. To explain what mass and weight are and use these to measure gravity force.		To label a science model showing gravity force. Predict cause and effect.	
L.O. to describe and explain how a magnet works.		To begin to use a science model to describe.	
L.O. To sort and classify materials into magnetic and non-magnetic Are all magnets the same?		To predict cause and effect. Follow written instructions.	
L.O. to investigate the strength of magnets. Which materials are magnetic?		To construct a bar chart to display our results. To make scientific predictions. Predict cause and effect.	

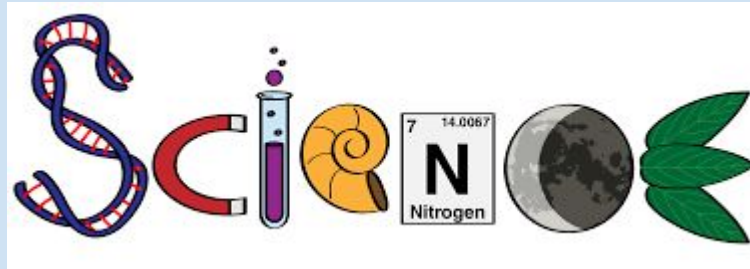


Science: Light

Learning Objectives	Vocabulary	Skills	Enquiry Type
L.O. to identify sources of light. L.O. to sort light sources into natural and man-made.	Light, dark/darker/darkest, bright/brighter/brightest, dim, light source (various), eye, reflect, reflective, shiny, dull, shadow, block (transparent, opaque)	L.O. To begin to use a science model to describe.	Comparative and Fair Test What is the best material to block light? (Data Loggers)
L.O. to identify which materials reflect light.		L.O. to predict using cause and effect.	
L.O. to identify which materials let light through		L.O. to predict using cause and effect.	
L.O. to explain what a shadow is		L.O. to predict using cause and effect.	
L.O. to explain why strong light can be dangerous.		L.O. To begin to use a science model to describe.	
Enquiry - What is the best material to block light? (Data loggers)		L.O. carry out an investigation	



Year 4



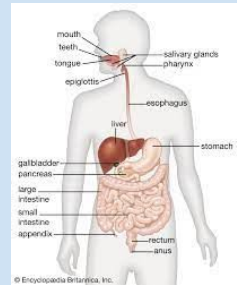
Science: Electricity

Learning Objectives	Vocabulary	Skills	Enquiry Type
How do we use electricity in our homes?	Electricity, energy, source, renewable/non-renewable, circuit, component, battery/cell, bulb, buzzer, motor, series, connector/wire, switch, conductor, insulator	To use science words correctly.	<u>Identifying, Classifying and Grouping</u> Which materials are conductors/ insulators?
Can you make a working series circuit?		To use science words correctly.	
Can you make a working series circuit?		To use science words correctly.	
How does a switch work?		To use a science model to describe.	
What are electrical conductors and insulators?		To use science to explain.	
Investigation lesson. Which materials are conductors and insulators?		L.O. to carry out an investigation.	



Science: Animals Including Humans

Learning Objectives	Vocabulary	Skills	Enquiry Type
Are there different types of teeth?	Teeth, incisor, canine, molar, pre-molar, acid, bacteria, plaque, enamel, digestion, mouth, gullet (oesophagus), stomach, small intestine, large intestine, anus (liver / pancreas), food chain, producer, consumer, predator, prey, carnivores, herbivores, omnivores.	Are there different types of teeth? L.O. use science words and models to describe.	<u>Research using secondary sources</u> How do dentists fix broken teeth?
How should you care for your teeth?		To use science to explain.	
How should you care for your teeth?		To use science to explain.	
What is digestion?		To use science words and models to describe.	
What are the parts of the digestive system?		To use science words and models to describe.	
What is a food chain?		To use science words and models to describe.	

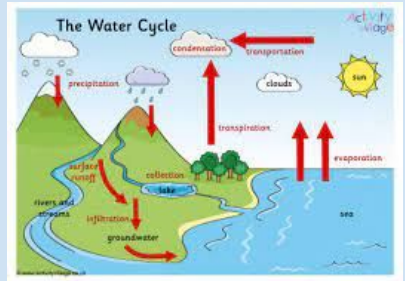


Science: States of Matter

Learning Objectives	Vocabulary	Skills	Enquiry Type
What are solids, liquids and gases?	State, solid, liquid, gas, characteristic, property, particle, heat, energy, (bond/attraction), heating, cooling, melting, freezing, evaporating, condensing, water cycle	To sort and classify. To use science words correctly.	<u>Pattern Seeking</u> How does the temperature of the environment affect the temperature of water?
What are solids, liquids and gases made of?		To use a science model to describe.	
What are solids, liquids and gases made of? What happens when substances change state?		To use a science model to describe To plan a fair test	
What are solids, liquids and gases made of? What happens when substances change state?		To use a science model to describe To plan a fair test	
What happens when a substance is heated or cooled? What is evaporation and condensation?		To plan a fair test.	
What happens when a substance is heated or cooled?		To write a scientific prediction.	



Science: States of Matter and The Water Cycle

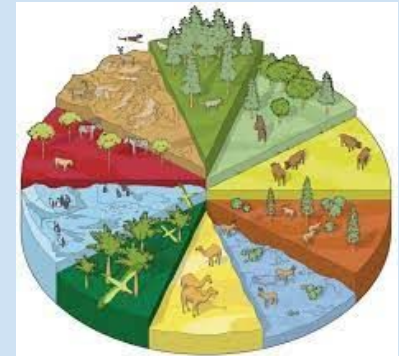
Learning Objectives	Vocabulary	Skills	Enquiry Type
What changes can we observe in materials?	State, solid, liquid, gas, characteristic, property, particle, heat, energy, (bond/attraction), heating, cooling, melting, freezing, evaporating, condensing, water cycle	To collect data from an investigation. Use science words	<u>Pattern Seeking</u> How does the temperature of the environment affect the temperature of water? (Data Loggers)
What changes can we observe in materials?		To make conclusions from data.	
What could we investigate?		To design my own investigation.	
Children's own investigations.		To work safely to carry out an investigation.	
What happens in the water cycle?		To use science words and models to describe.	
What happens in the water cycle?		To use science words and models to describe.	 The diagram illustrates the water cycle with the following components and processes: Sun: The source of energy driving the cycle. Evaporation: Water from the sea and lakes turns into vapor. Transpiration: Water from plants and trees turns into vapor. Condensation: Water vapor rises and cools to form clouds. Precipitation: Water falls from clouds as rain or snow. Collection: Water gathers in lakes, rivers, and streams. Infiltration: Water seeps into the ground to become groundwater. Return: Water flows back to the sea or is taken up by plants, completing the cycle.

Science: Sound

Learning Objectives	Vocabulary	Skills	Enquiry Type
What is sound?	Sound, vibration, volume, pitch, high/low, quiet/loud, tension	To use a science model to describe.	<u>Comparative and Fair Test</u> How does the distance from the source affect the volume of sound? 
What is sound?		To use a science model to describe.	
How does sound travel to our ears?		To plan a fair test.	
How does sound travel to our ears? Enquiry - How does the distance from the source affect the volume of sound?		To carry out a fair test.	
How can we change the volume of sound?		To present data using a time graph. Identify the data range and interval.	
How can we change the volume and pitch of sound?		To use a science model to explain. Plan a fair test.	

Science: Living Things and their Habitats

Learning Objectives	Vocabulary	Skills	Enquiry Type
Can you group living things in different ways?	Environment, habitat, micro-habitat, key, classification (genus, species), (binomial name), animal, vertebrate, fish, amphibian, reptile, bird, mammal, invertebrate, snails, slugs, spiders, woodlice, insects, worms, plants, trees, flowering plants (grasses, etc), non-flowering plants (conifers, ferns, mosses)	Create appropriate groups for sorting.	<u>Observation over time</u> How do the living things in the school grounds change over the year?
Can you use a classification key?		Use spider keys with fine differences.	
What living things can we find in... habitat?		Construct bar charts.	
What living things can we find in... habitat?		Construct bar charts.	
Recognise habitats can change.		Present data as charts and graphs.	
Recognise habitats can change.		Present data as charts and graphs.	



Year 5

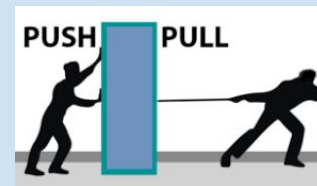


Science: Space

Learning Objectives	Vocabulary	Skills	Enquiry Type
To sort and classify. What do we know about Space?	Solar system, planets (names), star, sun, Earth, moon, gravity, orbit (elliptical), rotation, axis, poles, equator, northern/southern hemisphere, shadow, day, (lunar) month, year, leap year, eclipse, luminous, non-luminous, phases (names)	Draw and annotate diagrams	<u>Research using secondary sources</u> How far away are the planets in our solar system from the sun?
To use a science model to describe. To understand what the solar system is like		Draw and annotate diagrams or create 3D model	
To use a science model to describe. To understand why the sun moves across the sky		Describe patterns and trends	
To use a science model to describe. To explain and understand the phases of the moon.		Use science model to describe and explain	
To design a fair test. To research activities involving moon landings, space station, rockets, etc. Historical, current and future perspectives		Use science model to describe and explain	
To write a scientific prediction. To explore the solar system- could we live and survive on Mars? ● Create and plan lunar/mars base. Use all science. ● Are we alone? Life on Mars mystery activity.		Use a science model to describe and explain.	

Science: Forces

Learning Objectives	Vocabulary	Skills	Enquiry Type
To review contact forces (What are they?)	Force, contact, non-contact, push, pull, friction, air resistance, water resistance, up-thrust, drag, gravity, balanced, unbalanced, force arrow, accelerate, decelerate, Newton, force meter, mass, multiplier, lever, pulley, gear, pivot, fulcrum, effort, load, machine	To construct a complex table	<u>Comparative & Fair Test</u> How does the size of a parachute affect the time it takes to fall to the ground?
What is the effect of friction?		To use a science model to describe and explain	
What is the effect of air resistance?		To use a science model to describe and explain	
To review non-contact forces.		To construct a graph.	
What is up-thrust?		To construct a graph.	
What is a machine?		To construct a graph.	



Science: Properties and Materials (1)

Learning Objectives	Vocabulary	Skills	Enquiry Type
How does a material suit its role?	Material (types), properties (types), solid, liquid, gas, solution, mixture, particle, energy, dissolve (solute, solvent, saturation), filtering, sieving, evaporating, reversible, irreversible	To plan and carry out a fair test	<u>Identifying, Classifying and Grouping</u> How can we group materials based on their properties? (Data Loggers)
How does a material suit its role?		To construct a table	
To understand the difference between a solution and a mixture		To use a scientific model to describe and explain	
To understand that some materials dissolve to form a solution		To make predictions with cause and effect	
To explain how mixtures can be separated		Explaining science -use complex words Use science models to describe and explain	
To know the difference between reversible and irreversible changes		To select suitable equipment	

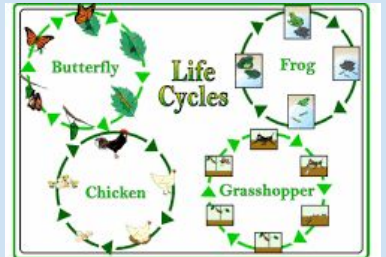
Science: Properties and Materials (2)

Learning Objectives	Vocabulary	Skills	Enquiry Type
To categorise reversible and non-reversible changes	Material (types), properties (types), solid, liquid, gas, solution, mixture, particle, energy, dissolve (solute, solvent, saturation), filtering, sieving, evaporating, reversible, irreversible	Explaining science -use complex words Designing experiments - select suitable equipment	<u>Identifying, Classifying and Grouping</u> How can we group materials based on their properties? (Data Loggers)
To identify materials which can be recycled and understand the importance of recycling.		Explaining science using complex words	
To use previous learning to answer questions based on properties of materials.		Explaining science using complex words	



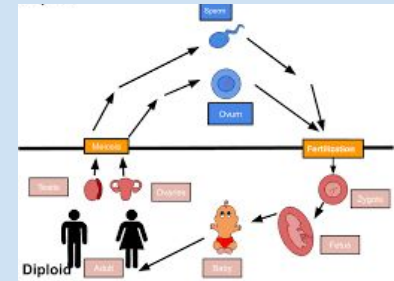
Science: Living Things and their habitats

Learning Objectives	Vocabulary	Skills	Enquiry Type
To compare animal life cycles	Life cycle (various, associated terminology), reproduction (internal / external), gamete, petals, sepals, carpel, stigma, ovary, anther, stamen, pollen, pollination, fertilisation, dispersal	To explain the life cycle of a butterfly and release the butterflies.	<u>Observation over time</u> How do butterflies change over their lifetime?
To begin to understand reproduction in plants		Draw & annotate diagrams	
To further understand reproduction in plants		Draw & annotate diagrams	
To further understand reproduction in plants		To plan a fair test.	
To further understand reproduction in plants		To use scientific vocabulary to explain.	
To explain the life cycle of a butterfly and release the butterflies.		Draw & annotate diagrams	

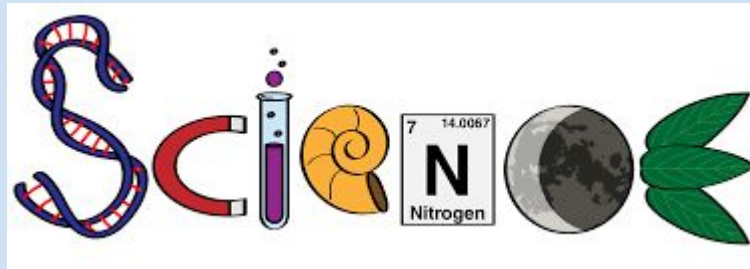


Science: Animals including humans

Learning Objectives	Vocabulary	Skills	Enquiry Type
To understand what happens as we get older- human life cycle	Baby, toddler, child, adolescent, adult, offspring, puberty, pubic hair, egg, sperm, testes, ovaries, oviduct, uterus, cervix, vagina, vulva, sperm duct, foreskin, scrotum, glands, erection, ejaculation, intercourse, fertilisation, gamete	Draw and annotate diagrams	<u>Pattern Seeking</u> Is there a relationship between an animal's size and its gestation period?
To understand what happens to our bodies when we get older		Construct complex tables	
To understand what are our reproductive organs.		Use complex words	
To understand what happens during puberty		Use complex words	
To understand where babies come from		Use model to describe/ explain	
Consolidation Lesson		Consolidation Lesson	



Year 6



Science: Animals including Humans

Learning Objectives	Vocabulary	Skills	Enquiry Type
LO: To know where the main organs are in the body.	Organs (various), circulatory system, circulation, blood, plasma, red blood cells, oxygenated, deoxygenated, exchange, artery, vein, heart, heart chambers, pulse, recovery time, drugs (various), alcohol, nicotine, tar	To use complex science words correctly.	<u>Comparative and Fair Test</u> How does the length of time we exercise for affect our heart rate?
LO: To understand why we have blood and how it gets around the human body.		To use a science model to explain.	
LO: To recognise the impact of exercise on the way the body functions.		To write an ordered method.	
LO: To recognise the impact of exercise on the way the body functions.		To write an ordered method.	
LO: To recognise the impact of diet, drugs, alcohol and lifestyle on the way the body functions.		To use complex science words correctly.	
LO: To recognise the impact of diet, drugs, alcohol and lifestyle on the way the body functions and where we can get help if there is a problem.		To use complex science words correctly.	

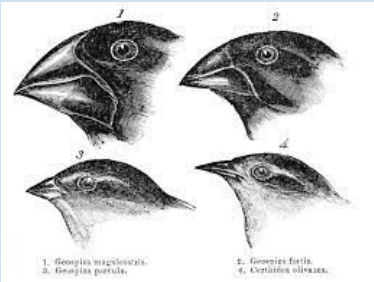


Science: Electricity

Learning Objectives	Vocabulary	Skills	Enquiry Type
The history of electricity and key scientists Can you make a working series circuit?	Circuit, electricity, energy, cell, battery, positive terminal, negative terminal, voltage (V), Amps (A), current, wire, insulator, resistance, resistor, filament, lamp, buzzer, motor, switch, series, Voltmeter, Ammeter	Use complex science words correctly Use a science model to explain	<u>Comparative and Fair Test</u> How does the voltage of the batteries in a circuit affect the brightness of the lamp? (Data Loggers)
To design a series circuit using the correct symbols. How can we change the amount of energy in a circuit?		Use accurate diagrams to explain. Make a hypothesis.	
Can I explain how energy is transferred? How can we change the amount of energy in a circuit?		Use a science model to explain Make a hypothesis.	
Can you make a working series circuit?		Use knowledge and understanding to make a hypothesis.	
What happens to the energy as it flows around a circuit?		Use a science model to explain	
What happens to the energy as it flows around a circuit?		Use knowledge and understanding to make a hypothesis.	



Science: Evolution and Inheritance

Learning Objectives	Vocabulary	Skills	Enquiry Type
How are we different? How are we the same? Why are fossils so important?	Fossil, extinction, variation, inheritance, feature, adaptation (various), species, natural selection, evolution	Construct charts/graphs Use complex science words	<u>Research using secondary sources</u> What impact has Charles Darwin had on how we think about evolution?
How are we different? How are we the same? (x2)		Construct charts/graphs	
How are living things adapted to their environment?		Use a science model to explain	
How are living things adapted to their environment?		Use a science model to explain	
Why are fossils so important? How do living things change?		Use complex science words Construct a complex table	

Science: Light

Learning Objectives	Vocabulary	Skills	Enquiry Type
How does light travel?	Light source, luminous, non-luminous, energy, absorbed, reflected, transmitted, scattered, shiny, opaque, reflective, transparent, translucent, image, plane, concave, convex, mirror, shadow.	Use a science model to explain	<u>Pattern Seeking</u> What is the link between the object's distance from a light source and its shadow? (Data Loggers)
What happens when light hits an object?		Describe patterns & make conclusions	
How can we see around corners?		Draw diagrams to describe & explain	
How do shadows form?		Reason knowledge and understanding to make a hypothesis	
How do shadows form?		Describe patterns & make conclusions	



Science: Living Things

Learning Objectives	Vocabulary	Skills	Enquiry Type
How are animals & plants classified?	Classification, binomial, kingdom (phylum, class, order, family, genus, species), vertebrate, invertebrate, microorganisms, bacteria, fungi, virus, (protist), classification characteristics (various), spider/number key, diversity, variation	To group and subgroup by fine observations Draw diagrams to describe and explain	<u>Identifying, Classifying and Grouping</u> How would you make a classification key for an animal?
What types of living things are there in ...?		To construct spider and number keys To group and subgroup by fine observations	
What types of living things are there in ...?		To draw diagrams to describe and explain To group and subgroup by fine observations	
Can you make a key to classify?		To show a secure knowledge and understanding of science To construct spider and number keys	
Where can we find microbes?		To use complex science words correctly To draw diagrams to describe and explain	
Where can we find microbes?		To describe changing patterns and relationships To draw diagrams to describe and explain	



Science: Revision

Learning Objectives	Vocabulary	Skills	Enquiry Type
To understand what digestion is (revision)	As stated in related schemes of work	Use science words & models to describe	<u>Observation over time</u> What happens to bread when it is left in different conditions?
How can we show and measure contact forces? (revision)		Big Picture Model	
		Predict cause & effect	
		Force Arrow Model	
What are solids, liquids & gases made of? (revision)		Use a science model to describe	
		The Particle Model	
How can mixtures be separated? (revision)		Use science models to describe & explain	
		The Particle model	
Any other areas needed		Any other areas needed	
Any other areas needed		Any other areas needed	