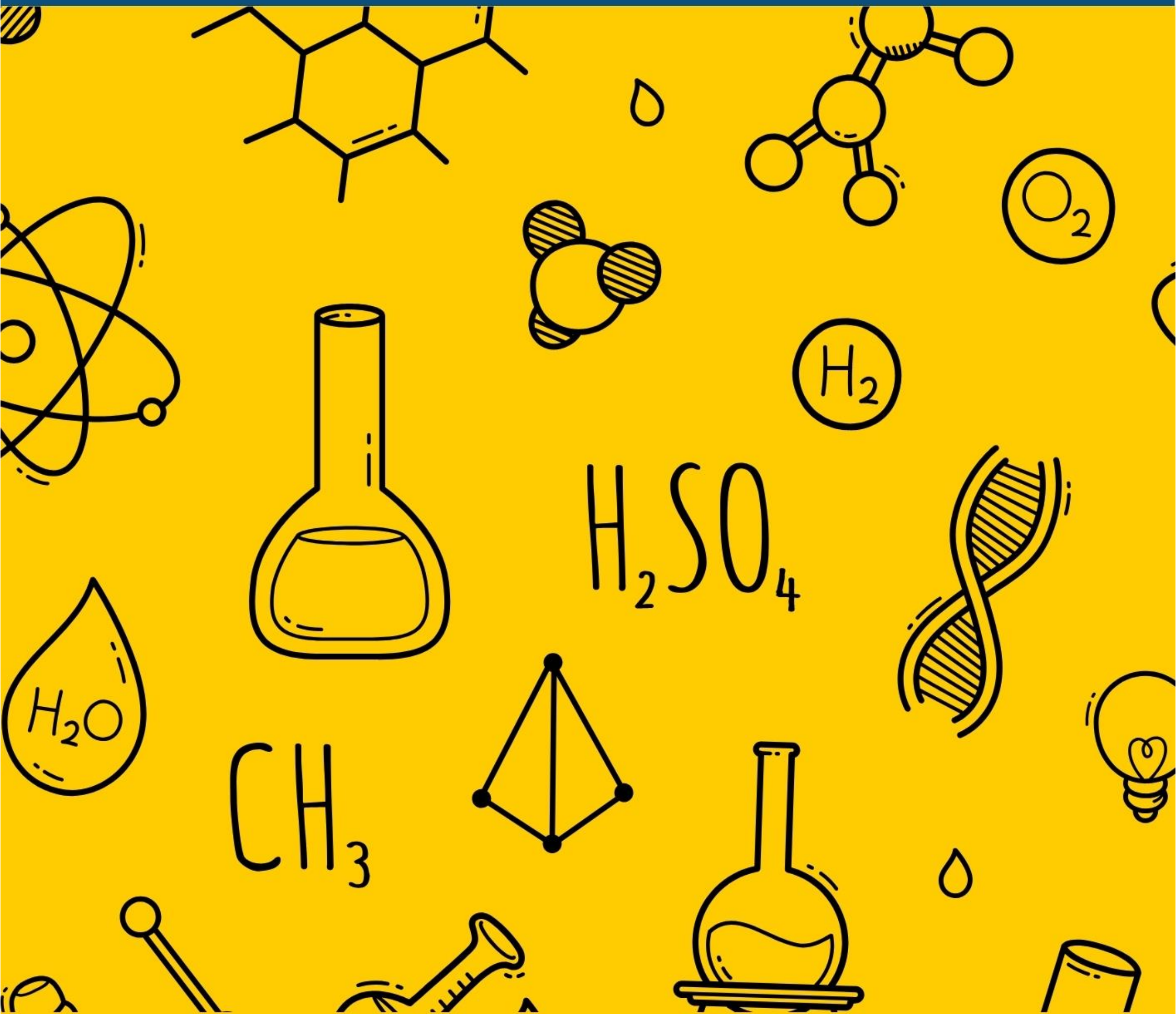




O.U.R SCIENCE CURRICULUM

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Science Curriculum

At Oveston we strive to give all children a high-quality science education that provides the foundations for understanding the world through the three science strands of biology, chemistry and physics. We believe all children should be given opportunities to explore the world through enquiry and knowledge-based learning. Alongside our History and Geography learning we encourage children to explain and develop a sense of excitement and curiosity about all aspects of science.

This all starts in the early years where child begin to build early investigative skills that they will continue to develop through enquiry in all aspects of their learning. As they move into KS1 children begin to plan their own enquiry using their scientific knowledge and investigation skills. By the time they get to KS2, children are confident in planning and developing their own scientific theories and ideas using their new and existing knowledge, their enquiry skills and own research. We aim for children to leave Oveston CEVC Primary School with the scientific skills they need to succeed in secondary school and beyond.

The Oveston Science Curriculum has four over-arching aims:

- Develop scientific knowledge and understanding through three strands of biology, chemistry and physics.
- Develop understanding of the three strands of science through different types of scientific enquiry
- Use scientific enquiry skills to answer scientific questions about the world around them.
- Use scientific knowledge to understand the uses and implications of science, in the past, today and in the future

What does this look like in the long term?

The impact of our Science curriculum is evidenced through our pupils' engagement, attainment, and strong understanding of scientific concepts. The desired outcomes for the children at Oveston are:

- Lifelong Learners: Our pupils leave Primary school with a genuine love for Science, seeking further opportunities to explore and learn beyond the classroom.
- Achievement and Progress: Data reflects that the majority of our pupils achieve or exceed age-related expectations in Science. Pupil progress is consistently monitored, demonstrating significant academic improvement over time.
- Skills for the Future: Children develop transferable skills such as problem-solving, teamwork, and communication. These essential skills prepare them for secondary education and future careers.
- Active Citizens: Pupils demonstrate an understanding of scientific issues relevant to their lives and the world around them, enabling them to take informed actions on societal and environmental challenges.
- Positive Attitudes: Feedback from pupil voice activities indicates high levels of enjoyment and engagement in Science lessons, with pupils expressing confidence in their abilities to tackle scientific enquiries.



Science enquiry Framework

		Key focus
P L A N	Ask questions and Plan Enquiry 	KS1 1. Write a clear question 2. Predict what might happen in the results 3. Give a scientific reason for a prediction 4. Write a method.
		LKS2 1. Write a clear question showing what is to be investigated 2. Predict what the results will show 3. Give scientific reasons for observations 4. List factors that will need to keep it a fair test 5. Write an accurate method
		UKS2 1. Write a clear question showing the factors to be changed and factors to be measured (variables) 2. Predict what the results will show, giving scientific reasons for predictions 3. Explain factors that need to be considered to create a fair test 4. Identify scientific evidence that supports or refutes ideas.
	Set Up Enquiry 	KS1 1. List materials and equipment 2. Write a method using time connectives
		LKS2 1. Begin to set up simple enquiry (comparative and fair test) 2. List materials and equipment 3. Write an accurate method
		UKS2 1. Devise scientific inquiry (comparative and fair test) 2. List materials and equipment 3. Write an accurate method 4. Identify scientific evidence that supports or refutes ideas 5. Draw an accurate equipment diagram
D O	Observe and Measure 	KS1 1. Perform simple scientific tests 2. Make observations throughout the investigation 3. Record results
		LKS2 1. Perform scientific test 2. Make systematic observations and/or measure outcomes of investigation
		UKS2 1. Perform and devise scientific tests 2. Observe and/or take accurate measurements of the outcomes of investigation 3. Repeat testing where appropriate
	Record 	KS1 1. Identify and classify results 2. Begin to record results
		LKS2 1. Discuss results 2. Record accurate evidence in a labelled results table, bar chart or labelled drawing
		UKS2 1. Record evidence in a variety of labelled results tables e.g. bar charts. Line graphs, scatter graphs and tables. 2. Draw accurate equipment diagrams
R E V I E W	Interpret and Report 	KS1 1. Identify patterns or trends and classify results
		LKS2 1. Identify patterns or trends in results 2. Link results to prediction
		UKS2 1. Identify patterns or trends in results 2. Use scientific knowledge and vocabulary to explain patterns 3. Link results to prediction 4. Use patterns to draw comparative conclusions (e.g. 'er...er statements')
	Evaluation 	KS1 1. Talk about results 2. Start to use scientific knowledge to explain results
		LKS2 1. Start to use scientific knowledge to explain patterns 2. Suggest ways to improve the test 3. Identify differences and changes related to scientific ideas and processes 4. Identify scientific evidence that supports or refutes findings 5. Raise further questions based on findings.
		UKS2 1. Discuss the reliability of results 2. Consider improvements that could be made 3. Make suggestions how the investigation could be done again, extended or changed.



National Curriculum Area	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Plants	- identify and name a variety of common wild and garden plants, including deciduous and evergreen trees - identify and describe the basic structure of a variety of common flowering plants, including trees	- observe and describe how seeds and bulbs grow into mature plants - find out and describe how plants need water, light and a suitable temperature to grow and stay healthy	Year 3 - identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers - explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant - investigate the way in which water is transported within plants - explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal			
Animals including humans	- identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals - identify and name a variety of common animals that are carnivores, herbivores and omnivores - describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets) - identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense	- notice that animals, including humans, have offspring which grow into adults - find out about and describe the basic needs of animals, including humans, for survival (water, food and air) - describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene	- identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat - identify that humans and some other animals have skeletons and muscles for support, protection and movement	- describe the simple functions of the basic parts of the digestive system in humans - identify the different types of teeth in humans and their simple functions - construct and interpret a variety of food chains, identifying producers, predators and prey	describe the changes as humans develop to old age	
Living things and their habitats		Year 2 - explore and compare the differences between things that are living, dead, and things that have never been alive - identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other - identify and name a variety of plants and animals in their habitats, including microhabitats 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		- recognise that living things can be grouped in a variety of ways - explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment - recognise that environments can change and that this can sometimes pose	- describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird - describe the life process of reproduction in some plants and animals	- describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals - give reasons for classifying plants and animals based on specific characteristics



Evolution and inheritance					use the idea of the Earth’s rotation to explain day and night and the apparent movement of the sun across the sky	identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution
Light			- recognise that they need light in order to see things and that dark is the absence of light - notice that light is reflected from surfaces - recognise that light from the sun can be dangerous and that there are ways to protect their eyes - recognise that shadows are formed when the light from a light source is blocked by an opaque object - find patterns in the way that the size of shadows change	- 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		- recognise that light appears to travel in straight lines - use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye - explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes - use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them
Sound						
Forces			Year 3 - compare how things move on different surfaces - notice that some forces need contact between 2 objects, but magnetic forces can act at a distance - observe how magnets attract or repel each other and attract some materials and not others - 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 - describe magnets as having 2 poles - predict whether 2 magnets will attract or repel each other, depending on which poles are facing	Year 5 - explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object - identify the effects of air resistance, water resistance and friction, that act between moving surfaces - recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect		



Electricity				- identify common appliances that run on electricity - construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers - identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery - recognize that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit - recognise some common conductors and insulators, and associate metals with being good conductors	- associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit - compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches - use recognised symbols when representing a simple circuit in a diagram
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National Curriculum Area	Years 1 and 2	Years 3 and 4	Years 5 and 6
Enquiry skills	- asking simple questions and recognising that they can be answered in different ways - observing closely, using simple equipment - performing simple tests - identifying and classifying - using their observations and ideas to suggest answers to questions - gathering and recording data to help in answering questions	- asking relevant questions and using different types of scientific enquiries to answer them - setting up simple practical enquiries, comparative and fair tests - making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers - gathering, recording, classifying and presenting data in a variety of ways to help in answering questions - recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables - reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions - using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions - identifying differences, similarities or changes related to simple scientific ideas and processes - using straightforward scientific evidence to answer questions or to support their findings.	- 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 a 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 yearly overview

Year group	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
EYFS						
1	Enquiry Skills	Animals including humans	Materials	Materials	Plants	Plants
		Seasonal changes				
2	Enquiry Skills	Materials	Animals including humans	Animals including humans	Plants	Living things and their habitats
3	Enquiry Skills	Rocks	Magnets	Light	Plants	Animals including humans
4	Enquiry Skills	Electricity	Sound	Animals including humans	Living things and their habitats	States of matter
5	Enquiry Skills	Forces	Materials	Space	Living things and their habitats	Animals including humans
6	Enquiry Skills	Evolution and inheritance	Electricity	Light	Living things and their habitats	Animals including humans

Biology

Physics

Chemistry

Earth Science