





Curriculum Subject: Science

Subject Leader: Elliott Lawson

Curriculum Overview and Statement of Intent,
Implementation and Impact.

	<p><u>Vision</u></p> <p>'We aspire to ensure that our inclusive, welcoming and loving church school gives children and adults the opportunity to reach their full potential, so that through God's love they can make a difference to the world around them.'</p>	<p><u>Values</u></p> <p>Compassion</p> <p>Courage</p> <p>Community</p>
<p><u>Motto</u></p> <p>Learning to make a difference through God's love. <i>Jesus said, 'Love one another as I have loved you' John 13:34</i></p>		
<p><u>Mission</u></p> <ul style="list-style-type: none">• Ensure that children are safe and demonstrate compassion for others.• The school and its community work together to promote mental health and wellbeing and ensure that everyone feels respected.• Unify the school family enabling it to flourish through collective worship, inclusive extra curricular provision and a broad, balanced curriculum.• Encourage inclusively high expectations enabling children to personally and academically thrive.• Deliver an inspirational, creative curriculum to meet the needs of our aspirational children.• Ensure that children and adults acquire and apply knowledge that gives them the courage to fulfil their aspirations.• Create an environment that builds confidence for the school family to grow resilience.• Enable children to persevere on a journey of social, moral, cultural and spiritual growth.		



Intent

Our science curriculum provides a broad and balanced offering following the National Curriculum guidelines. It picks up on topics taught in key stage one and dovetails into the work the children will complete in secondary school. The children follow a scheme of work that revisits topics, building on previous knowledge. Learning should be balanced with a weighting on experimenting and finding out but also giving the children an opportunity to transfer skills learnt in other curriculum areas to science. The Aim of science is to develop interests which can enhance and make a difference in terms of career aspirations and hobbies to the children's future.

Implementation

The children will be provided with the opportunity to access science on a weekly basis. Children will be taught science which is sometimes cross-curricular linked to the specific topics the children are focusing on. Newport Junior School also offers the children opportunities to enjoy science when taking part in whole school events, such as Science week. Children will be encouraged to explore their own ideas with the aim of fostering a love of the topic and also giving them opportunity to deciding to further study science once they have moved on from the Junior School.

Impact

Studying Science will allow the children to make sense of the world around them. It will give them the opportunity to think about and explain how our world has developed. Different forms of knowledge learnt will improve life opportunities opening up a wide range of careers for all learners. Hands on opportunities teach a range of skills such as perseverance, teamwork and resilience; all skills to apply to future learning and opportunities in life.

Report CE Junior School: Curriculum Progress Map for _Science_ 2022/2023

	Year 3	Year 4	Year 5	Year 6
Autumn	Unit Title: Electricity	Unit Title: Light	Unit Title: Forces	Unit Title: Heart and Lungs 9 animals including humans)
	Vocabulary: Electrical, circuit, bulb, battery, crocodile clip, buzzer Motor, conduct/ conductor, insulate, insulator, switch, break, power, bright, brightness, dim, batteries	Vocabulary: Dark, shadow, opaque, direction, light travels, transparent, Translucent, shortest, longest, highest, object, material, light source, sun, night, day	Vocabulary: gravity, acceleration, newtons, air-resistance , up thrust, friction, axle, pulley, gear, fulcrum, lever, ratio, ramp	Vocabulary: Heart, circulation, pulse, muscle, blood vessel, lung, breathe activity
	Key Knowledge: To understand the dangers of electricity To understand how to make a circuit and know what happens if you break the circuit	Key Knowledge: To learn about different light sources, to understand how light travels, translucent, transparent and opaque materials. Shadow formation	Key Knowledge: To understand what gravity is and the effect it has. To understand what air and water resistance and friction are. To understand how levers, pulleys and gears use force.	Key Knowledge: To identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood To recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.
	Key Skills: To use the materials needed for a circuit in order to construct one that lights a bulb.	Key Skills: To use knowledge of light and find, natural and man made sources. Use torches understand how it travels and what blocks it.	Key Skills: To experiment with different objects to understand the force that they exert or have exerted on them.	Key Skills: To research and understand how the heart and lungs work within our bodies.
Autumn	Unit Title: Animals and skeletons	Unit Title: Sound	Unit Title: Electricity	Unit Title: Classification
	Vocabulary: Skeleton, bone, ribs, spine, skull, vertebrate, contract, Relax, contraction, joint, move, muscle	Vocabulary: Sound, pitch, loudness, vibrate, vibration, vibrating, tuning, muffle, Quiet, soft, loud, high, low, noise, source	Vocabulary: circuit, conductor, insulator, symbol, circuit diagram, component, voltage, brightness	Vocabulary: mammals, plants, animals, vertebrates, invertebrates, reptiles, amphibians, fish, birds, species, environment, habitat, extinct, virus, bacteria, microorganism, algae, fungi, decay, microbe
	Key Knowledge: To learn skeletons, the bones contained within it and understand why animals need one. Knowledge of different food groups	Key Knowledge: To learn what makes sound, that sound travels through vibrations and that it has different pitch. Recognise that sound gets fainter the further away you get	Key Knowledge: To understand that using different amounts of cells will have an effect on at he brightness of light or sound of the buzzer. To understand how to represent their ideas using symbols.	Key Knowledge: To know that plants and animals are classified according to their characteristics. To understand the work of Carl Linneas.
	Key Skills: To understand that we have a skeleton and know why we have one. Recognise other animal skeletons.	Key Skills: To make sounds altering the pitch, understanding that sound travels through vibrations. Know what blocks sound.	Key Skills: To know how to represent a circuit using symbols and how to change the brightness/ loudness by varying the amount of cells	Key Skills: To draw keys to separate species according to their characteristics. To research the work of Carl Linneas.
Spring	Unit Title Classification	Unit Title: Forces and Magnets	Unit Title: Earth and Space	
	Vocabulary: Classify, group, animal, plant, characteristics, similar, different	Vocabulary: Friction, force meter, newton, resistance, magnet, spring Metal, iron, copper, aluminium, steel, brass, attract, repel, attraction, repulsion	Vocabulary: earth, sun, moon, sphere, revolve, orbit, spin, rotate axis, sunrise / sunset, north, south, east, west	
	Key Knowledge: To be able to identify the features of animals and plants	Key Knowledge: To understand what a force is, how magnets exert different forces, to know what they are attracted to. To understand friction and the role of a force meter. Know that different surfaces will exert different amounts of friction	Key Knowledge: To understand the movement and rotation of different planets and how this creates night and day and the apparent movement of the sun across the sky.	
	Key Skills: To understand the characteristics of different plants and animals in order to develop a branching key.	Key Skills: To be able to use and understand magnets and use a force meter to test the friction of different surfaces.	Key Skills: To know research and develop an understand of the planets in our solar system and their functions.	



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	Year 3	Year 4	Year 5	Year 6
Spring	Unit Title: Digestion	Unit Title: States of Matter	Unit Title: Properties and Changes of materials	
	Vocabulary: Digest, absorb, move, mouth, oesophagus, stomach, small intestine, excrete, molar, premolar, canine, incisor	Vocabulary: material, solid, liquid, gas, melt, freeze, dissolve, solution oxygen, carbon dioxide, air, evaporation, condensation	Vocabulary: mixture, dissolve, solvent, solution, solute, soluble , Insoluble, filtration, evaporation, condensation, solid, liquid, gas, solidify, freezing, melting, state thermal, insulate	
	Key Knowledge: To understand the parts of the digestive system and how they act together to process food. To understand the different teeth that humans and other animals have and what function they perform.	Key Knowledge: To understand the differences between solids, liquids and gases, what happens when materials are heated and cooled, understand the water cycle and evaporation and condensation within it.	Key Knowledge: To understand how we compare and group different materials according to their properties. To understand dissolving filtering evaporation and separation of materials. Understand what changes are reversible and irreversible.	
	Key Skills: To understand how food breaks down and how it is absorbed. To know the role of the teeth.	Key Skills: To develop understanding of solids, liquids and gases and what happens to them if they change state. Know how water is recycled in the water cycle.	Key Skills: To know the properties of materials and know how different processes will affect them.	
Summer	Unit Title: Plants	Unit Title: Rocks and Soils	Unit Title: Living things and their habitats. Animals including humans	Unit Title: Light
	Vocabulary: Seed, seedling, water, warmth, compost, soil, light, Fruit, stem, leaf / leaves, shoot, root, seed, grow, growth	Vocabulary: slate, granite, chalk, sandstone, soil, clay, limestone, sand marble, absorbent, characteristic, surface	Vocabulary: Reproduce/ reproduction, stamen, stigma, sepal, petal, ovary, pollen, Style, Germinate/ germination,Fertilise/ fertilisation, pollination, Disperse / dispersal, life cycle, babyhood, childhood, adolescence, adulthood	Vocabulary: Light, beam, reflect / reflection, opaque, mirror, source, reflected, Travel, block, shiny surface
	Key Knowledge: To know what a plant needs to grow and understand what happens if those requirements are not present	Key Knowledge: To understand the characteristics of different rocks and their properties. To know how different rocks are formed and how fossils are formed within them.	Key Knowledge: To learn and 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 the changes as humans enter old age	Key Knowledge: To 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 .
	Key Skills: To grow plants and understand what they need, understand how water is carried and know the life cycle of flowering plants.	Key Skills: To experiment with rocks to learn their properties. To understand how fossils are formed.	Key Skills: To research and develop an understanding of reproduction and the changes in animals including old age.	Key Skills: To explore the ways that light travels and how shadows form
Summer	Unit Title: Habitats	Unit Title: Respecting the environment	Unit title: Animals including humans	Unit Title: Evolution
	Vocabulary: Nutrition, keys, condition, consumer, producer, organism Predator, prey, food chain, similar, different	Vocabulary: Environment, rivers, water, pollution, clean, protect, issues,	Vocabulary: Life stage, fertile, baby, childhood, adolescence, puberty, adulthood	Vocabulary: natural selection, survival, variation, inherited, adaption, hypothesis, DNA, mutation, survival of the fittest, camouflage, predator / prey,
	Key Knowledge: To understand why animals choose particular homes and know why they choose that environment	Key Knowledge: To understand how humans have an impact on the quality of water in our rivers, to know other pollutants, to understand how we can clean and maintain our environment.	Notice that animals, including humans, have offspring which grow into adults and understand changes and effects which lead to reproduction.	Key Knowledge: To understand how animals and plants adapt and change over time and how animals produce offspring in their own likeness.
	Key Skills: To develop an understanding of different habitats.	Key Skills: To use their knowledge of their environment to suggest how we can change our habits and respect the world we live in	Key skills: Understand changes affecting puberty.	Key Skills: To research how plants and animals have adapted and changed over time and the reasons why.

Spiritual map for NJS Science-

A set of questions designed to increase spiritual discussion around the curriculum areas.

Year 3 Autumn-Should animals eat other animals?

Year 3 Spring- Have humans found all species on earth? Should we keep looking?

Year 3 Summer-Should we continue to change the world to live on?

Year 4 Autumn- If we don't see or hear it, do we know it happened?

Year 4 Spring - Do we have time to save the environment?

Year 4 Summer- Should we mine rare metals for new technology?

Year 5 Autumn- Will anything we know now... One day be disproved?

Year 5 Spring- Are you the centre of your universe?

Year 3 Summer- Should we genetically engineer plants? How about humans?

Year 6 Autumn- Should we categorize humans?

Year 6 Spring- Why do we base our knowledge on a couple tests?

Year 6 Summer- Should people of faith learn science which makes contradictions?