Science Long Term Plan

Science is using enquiry to explain the physical and natural world.

Vision

At Oatlands Junior School, we are all scientists! Our children's journey through our exciting, challenging and relevant science curriculum ensures they develop the skills they need to explore, answer questions about and gain a deeper understanding of the world around them.

OJS Curriculum Threads

Our curriculum vision is based upon our knowledge of our pupils and community. Our three curriculum threads are:

- Promote Equality and Diversity
- Provoke Curiosity
- Embed Safe Behaviours

These threads are woven through each subject, alongside individual subject pedagogy, to ensure our learners benefit from a purposeful curriculum.

Fundamental British Values

-Democracy
-Rule of Law
-Individual Liberty
-Respect and Tolerance

The Science curriculum is inclusive and promotes respect, tolerance and appreciation of equality and diversity through its pedagogical approach (see Curriculum Handbook). Children are immersed in interesting and fun topics that develop lively, enquiring minds and are encouraged to celebrate diversity and make links through well-connected knowledge. Links to Spiritual, Moral, Social and Cultural & FBV are made in Year Group OJS Passports and the wider curriculum offer in Science.

National Curriculum Aims

The national curriculum for science aims to ensure that all pupils:

- ♣ 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;
- ♣ are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future.

Planning and Resources

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	At OJS, we follow the National Curriculum as a foundation for our Science planning. We then bespoke our planning by using Snap Science documentations. Science is taught in a weekly two-hour slot in every year group. Our close links with Oatlands Infants School and our local secondary schools ensure that our Science curriculum is fluid and progressive. **Wider Offer** In Science, our wider offer within the school day is topic specific visitors (Y3 – physiotherapist visit, Y5 – Planetarium and Abbie Ayre), trips (Y5 – Arboretum) and secondary school lesson experiences (Y6). We celebrate Science through weekly Achievement Awards, Scarth's Celebrations and Oatlands Points as well as celebrating national events such as British Science Week and the Great Science Share for Schools. **Pupil Voice Groups** Through the pupil voice groups, Science Squad, School Council and our House Captains, we gather pupil feedback about Science and use this alongside monitoring to evaluate and adjust where appropriate our curriculum offer. **Links to other documents:** - Curriculum Handbook - OJS Passport - Teaching and Learning Policy - Assessment and Reporting policy - Key Knowledge Progression

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 3	**The power of forces** *(Forces: friction and magnets)* **Key Learning Objectives** • compare how things move on different surfaces • notice that some forces need contact between 2 objects, but magnetic forces can act at a distance	**Rock detectives** *(Rocks, soils and fossils)* **Key Learning Objectives** • compare and group together different kinds of rocks on	**Amazing bodies** *(Movement and nutrition for the human body)* **Key Learning Objectives** • identify that animals, including humans,	**Can you see me?** *(Light and shadows)* **Key Learning Objectives** • recognise that they need light in order to see things and that dark is	**How does your garden grow?** *(Flowering plants and plant growth and Flowering plants life cycle)* **Key Learning Objectives** • identify and describe	

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	• 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. **Key Vocabulary** • push • pull • twist • friction • gravity • Newton • Attract • Repel • Magnetic • Non-magnetic **Wider Offer** • Investigation of real-life use of forces and exploration of magnetic materials within the local environment. **Curriculum Threads**	the basis of their appearance and simple physical properties • describe in simple terms how fossils are formed when things that have lived are trapped within rock • recognise that soils are made from rocks and organic matter. **Key Vocabulary** • Mineral • Metamorphic • Igneous • Sedimentary • Crystalline • Permeable	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. **Key Vocabulary** • Balanced diet • Fruit and vegetables • Carbohydrates • Protein • Fibre • Fat • Dairy • Hinge joint • Sliding joint	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.	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

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All lessons are question-led. Pupils consider the use of forces within our everyday lives and magnetic materials within our local environment.

Pupils will practice the enquiry type: comparative and fair testing and will develop skills for safe scientific investigation.

Fundamental British Values

Discussion around **Respect and Tolerance** when examining magnets and the idea that 'opposites attract'.

- Durable
- Ammonite
- Fossilise
- Fossil

Wider Offer

- Handling samples of rocks and fossils.

Curriculum Threads

All lessons are question-led. Pupils consider the formation of rocks and exactly why and how rocks are important in our daily lives.

Pupils study the work of female palaeontologists of different eras: Holly Betts (contemporary) and Mary Anning and focus on their

- Ball and socket joint

Wider Offer

- Cross-curricular application of scientific learning in PE lessons.

Curriculum Threads

Lessons are investigation-led. Pupils ask questions about their own health and explore ways in which to maximise this.

Pupils consider whether physical attributes such as lung capacity are affected by height, biological sex and age.

Key Vocabulary

- Light
- Dark
- Shadow
- Opaque
- Transparent
- Translucent
- Luminous
- Non-luminous
- Absorb
- Reflect
- Refract
- Spectrum

Wider Offer

- Real-life application of scientific learning to assist solving a fictionalized police investigation.

Curriculum Threads

in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.

Key Vocabulary

- Stigma
- Stamen
- Style
- Anther
- Filament
- Ovary
- Ovule
- Sepal
- Carpel
- Seed dispersal
- Germination
- Pollination

Wider Offer

- Children support development of the outdoor environment by planting and nurturing their own seedlings

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		contributions to paleontology.  Pupils will practice the enquiry types comparative and fair testing and classifying and grouping. They will develop skills for safe scientific investigation. **Fundamental British Values** Conversations about **Respect and Tolerance** when identifying the properties of different rocks and the ways in which shared characteristics can be used to group and classify	 Pupils develop their skills in comparative and fair testing and ensure sterility of equipment used for experimentation such as straws used when investigating lung capacity. Children investigate the requirements for healthy living and the potential impact of unhealthy behaviours. **Fundamental British Values** **Respect and Tolerance** is explored when pupils investigate their own lung capacities. **Individual Liberty** forms an element of discussions around nutrition and the	 All lessons begin with a question that prompts child-led investigation of a fictionalized theft. Children apply acquired scientific knowledge to identifying the method of the theft and its perpetrator.  Children learn the science behind forensic investigation and profiling. Suspects for the fictionalised crime investigated represent varied backgrounds and characteristics.  Pupils discuss the importance of keeping our eyes	in classroom planters. **Curriculum Threads**  Lessons begin with a question that supports child-led investigation. Children apply the botanical knowledge acquired to their own plants and designing a 'perfect' flower.  Pupils consider the reproduction of plants and the concept of biological sex. Opportunities exist to address misconceptions relating to gender stereotypes. 

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				right to choose the diet you believe to be the best for you.	safe from the sun and opportunity to put into practice ways to mitigate this risk. **Fundamental British Values** The nature of the investigation leading this unit provokes conversations around the **Rule of Law**, the reasons behind the necessity of law and the consequences of failing to adhere to laws established. In addition, the role of **Democracy** in law formation in the U.K. and the **Respect and Tolerance** of differing laws around the globe can also be touched upon.	Children identify safe and edible plants and know how to approach plants about which we are uncertain. **Fundamental British Values** Discussion around differing characteristics of plants and biological sex when identifying parts of a flower promote **Respect and Tolerance.**
	Autumn 1	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**

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Year 4	**Where does all that food go?** *(Digestion and food chains)*	**Classification of plants and animals** *(Classification of plants and animals)*	**In a state** *(Changes of state)*	**Good vibrations** *(Sound)*	**Human impact** *(Human impact on the environment)*	**Switched on** *(Electricity: circuits)*
	Key Learning Objectives • 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. **Key Vocabulary** • Oesophagus • Small intestine • Large intestine • Rectum	**Key Learning Objectives** • 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 **Key Vocabulary** • characteristic • feature	**Key Learning Objectives** • compare and group materials together, according to whether they are solids, liquids or gases • observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees	**Key Learning Objectives** • 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	**Key Learning Objectives** • recognise that environments can change and that this can sometimes pose dangers to living things. **Key Vocabulary** • Conservation • Deforestation • Biodiversity • Habitat • Local • Global **Wider Offer** • Children explore their local environment and investigate the impact of human activity upon this.	**Key Learning Objectives** • 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

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	• Anus • Digestion • Canine • Incisor • Premolar • Molar • Consumer **Wider Offer** • Handling of animal skulls and teeth. **Curriculum Threads**  All lessons are question-led. Pupils consider their own dietary needs and processes, as well as those of others, and explore the role their teeth play in the digestion of food.  Pupils consider whether biological sex and age impacts dietary requirements and processing.	• internal **Wider Offer** Children explore their local environment and the plants and animals that inhabit this. **Curriculum Threads**  Lessons are investigation-led. Pupils ask questions about the similarities and differences between animals and use their findings to classify and group based upon characteristics.  Pupils identify similar and different attributes of living things and consider alternative ways in which these can be	Celsius (°C) • identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. **Key Vocabulary** • Solid • Liquid • Gas • Viscous • Melt • Freeze • Boiling point • Water cycle • Evaporate • Condense **Wider Offer** • Visit from Yorkshire Water to complement learning about the water	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. **Key Vocabulary** • Volume • Low pitch	**Curriculum Threads**  Lessons are investigation-led. Pupils ask questions about their own impact on the local and global environment and explore ways in which to ensure positive outcomes of these.  Children explore different uses of land both locally and globally and explain why these may vary between regions and countries. Children recognise that all humans must work together to ensure the continued vitality of our shared environment.	loop with a battery • recognise 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. **Key Vocabulary** • Mains • Battery • Circuit • Cell • Complete circuit • Short circuit • Conductor • Insulator

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	 Children learn the importance of good nutrition, including effective sources of required food groups and how to maintain dental health through hygiene. **Fundamental British Values** The idea of **Individual Liberty** is raised when pupils consider the ways in which they choose to maintain digestive and oral health.	used to group and classify.  Children investigate the characteristics of a variety of species of plant and animal and identify features that pose risk of harm.	cycle and human acquisition of tap water. **Curriculum Threads**  All lessons begin with a question that prompts child-led investigation of a variety of substances, their properties and the ways in which these can be altered.  Children appreciate the necessity of access to clean water and explore ways in which equitable access to this vital amenity could be ensured. 	• High pitch • Vibrate • Vibration **Wider Offer** • Cross-curricular application of scientific learning in in-school and peripatetic music lessons. **Curriculum Threads**  Lessons begin with a question that supports child-led investigation. Children apply their knowledge of sound to identify patterns and suggest real-life applications of their learning.	 Children investigate the impact of their own actions upon our local environment and explore ways in which to minimize harmful consequences. **Fundamental British Values** Conversations around the role of governments in selecting land use and promoting or inhibiting impactful events such as deforestation contribute to a greater understanding of **Democracy** and the **Rule of Law**. **Respect and Tolerance** form part of discussions about human impact on the environment and the need to respect all living things in order	• Terminal • Electron • Filament **Wider Offer** • Safe handling of electrical items and creation of own simple, functioning circuits. **Curriculum Threads**  All lessons are question-led. Pupils consider the way in which circuits can be both made and broken as well as exactly why and how electricity has become an essential element of our daily lives. 

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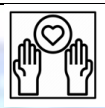
			Children explore the journey of water from natural sources to our taps and describe the positive effects of water on our health and environment and negative effects of wasting water. Pupils suggest how water wastage might be minimised. **Fundamental British Values** Discussion around **Respect and Tolerance** when grouping materials based upon shared properties.	 Pupils consider the different ways in which living beings experience sound, including people of varied biological sex and age.  Children discover the potentially negative effects upon hearing of exposure to high pitches and volumes. Pupils explore ways in which sound can be generated, providing them with the requisite knowledge to be able to create audible alerts in a time of need. **Fundamental British Values** **Respect and Tolerance** are	to maintain a viable and healthy planet.	Children learn about the dangers associated with electricity and learn how to protect themselves when using electrical equipment. **Fundamental British Values** Identifying the number of items reliant upon electricity allows for conversations about **Respect** for our planet and **Individual Liberty** in choosing whether or not these objects are essential to our lives.

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				considered when exploring the different ways in which people may experience sound, or may not experience sound at all.		
	Autumn 1	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
Year 5	**Circle of life** *(Plant and animal life cycles and Human Growth)* **Key Learning Objectives** • 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 develop to old age.	**Feel the force** *(Forces and Mechanisms)* **Key Learning Objectives** • 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	**The Earth and beyond** *(Earth and space)* **Key Learning Objectives** • describe the movement of the Earth and other planets relative to the sun in the solar system • describe the movement of the moon relative to the Earth • describe the sun, Earth and moon as approximately spherical bodies • use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky. **Key Vocabulary** • Greenwich Meridian • Solar system • Orbit • Axis • Full moon • New moon • Crescent • Waxing		**All change** *(Properties and uses of materials and Separating mixtures and changing materials)* **Key Learning Objectives** • 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 • know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution • use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating • give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic	

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Key Vocabulary

- Life cycle
- Marsupial
- Thorax
- Abdomen
- Antennae
- Metamorphosis
- Evolution

Wider Offer

- Arboretum visit to explore the life cycle of plants.

Curriculum Threads

All lessons are question-led. Pupils consider the different life cycles and reproductive methods of a range of animals and plants and explore ways in which their own bodies will change as they grow older.

- recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect.

Key Vocabulary

- Balanced
- Unbalanced
- Air resistance
- Water resistance
- Upthrust
- Lever
- Fulcrum
- Pivot
- Pulley
- Newton meter

Wider Offer

- Children make and use their own levers and pulleys, thereby exploring the real-life and practical

- Waning
- Equinox

Wider Offer

- Visit from the planetarium, allowing children to explore more practically the solar system and beyond.

Curriculum Threads

All lessons begin with a question that prompts child-led investigation of the solar system and the reasons behind our experiencing seasons and differing lengths of daytime and nighttime throughout a year in the U.K.

Pupils explore the effect of the U.K.'s location on our seasons and the lengths of daytime and nighttime at different points during the year.

Children recognise that countries in different global locations have a different experience and explain why this is.

Pupils discuss that Greenwich Mean Time is used as standard time in only a handful of countries.

- demonstrate that dissolving, mixing and changes of state are reversible changes
- 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.

Key Vocabulary

- Soluble
- Insoluble
- Dissolve
- Reversible
- Non-reversible
- Oxidise
- Saturated
- Filter
- Suspension
- Ductile
- Elasticity
- Flammable

Wider Offer

- Handling of a variety of materials and exploration of the differing uses of these.

Curriculum Threads

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	Children recognise that there is diversity in attribute and need across all living things and why these differences are supportive of happy and healthy survival. Pupils explore changes that occur in all our bodies as we grow older and the effect these may have upon us.  Children describe the changes they can expect to see in their own bodies over time and consider ways in which to maintain health and promote positive development over the courses of their lifetimes. **Fundamental British Values** Children develop **Respect and**	applications of their science learning. Pupils create and test paper aeroplanes of different sizes and designs. **Curriculum Threads**  Lessons are investigation-led. Pupils ask questions about how best to move larger or more heavy objects and explore the need for different designs according to designated use of a vehicle.  Pupils identify safe ways in which to move heavy objects to minimise the risk of injury when so doing.	 Discussions around the sun offer opportunities for children to consider and discuss sun safety. **Fundamental British Values** Discussions pertaining to Greenwich Mean Time and the use of the Greenwich Meridian to establish standard time in only some countries promote **Respect and Tolerance** as children recognise that differing regions experience time and seasons in varied ways.	Lessons begin with a question that supports child-led investigation. Children apply their knowledge of materials to group and classify these and suggest ways in which their states might be altered or constituent parts separated.  Pupils identify similarities and differences between inanimate materials and suggest ways in which variability of attributes can be used to group and classify objects as well as living things.  Children develop skills for safe scientific investigation when filtering, sieving and, in particular, evaporating substances. **Fundamental British Values** Discussion around **Respect and Tolerance** when grouping materials based upon shared properties.

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	Tolerance as they learn that different species have differing life cycles and that all humans develop in the same way as they grow older. Pupils discuss lifestyle choices they can make to support their own growth and development, recognising that is is their **Individual Liberty** that allows this.	**Fundamental British Values** **Respect and Tolerance** is promoted via conversations around the actions of objects upon one another and pupils' recognition that even inanimate items can be impacted by one another.				
	Autumn 1	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
Year 6	**<u>The nature library</u>** *(Classification of living things)* **Key Learning Objectives** • describe how living things are classified into broad groups according to common observable characteristics and based	**<u>Light up your world</u>** *(What light does)* **Key Learning Objectives** • recognise that light appears to travel in straight lines • use the idea that light travels in straight lines to explain	**<u>Danger! Low voltage</u>** *(Electricity: changing circuits)* **Key Learning Objectives** • associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit	**<u>Everything changes</u>** *(Evolution and inheritance)* **Key Learning Objectives** • recognise that living things have changed over time and that fossils provide information about living	**<u>Body pump and body health</u>** *(Human circulation and Body health)* **Key Learning Objectives** • identify and name the main parts of the human circulatory system,	**<u>Secondary transition</u>** **Key Learning Objectives** • identify the distinct disciplines of biology, chemistry and physics • begin to see the connections between these subject areas in preparation

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	on similarities and differences, including micro-organisms, plants and animals • give reasons for classifying plants and animals based on specific characteristics **Key Vocabulary** • Division • Genus • Species • Colony • Fungi • Arachnids • Arthropods • Micro-organisms • Microbes • Bacteria **Wider Offer** • Children are introduced to classification keys practically,	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. **Key Vocabulary** • Spectrum • Ultra-violet • Refraction • Dispersion	• 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. **Key Vocabulary** • Current • Filament • Resistance • Resistor • Fossil fuels • Nuclear • Biomass • Wind turbine • Hydro-electric **Wider Offer**	things that inhabited the Earth millions of years ago • recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents • identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. **Key Vocabulary** • Population • Variation	and describe the functions of the heart, blood vessels and blood • recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function • describe the ways in which nutrients and water are transported within animals, including humans.	for further study at Key Stage 3. **Wider Offer** • Visits from and to local secondary schools, offering opportunities to work in scientific laboratories and develop familiarity with Key Stage 3 expectations. **Curriculum Threads**  Children are prepared for secondary study and begin to explore the expectations around and essential elements of safe scientific investigation within a formal laboratory setting.

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	handling and grouping familiar everyday items. **Curriculum Threads**  All lessons are question-led. Pupils consider the way in which different living things are grouped and suggest why particular characteristics have been chosen for classification.  Children recognise that there is diversity in attribute and need across all living things and explore the reasons behind the characteristics chosen for different classifications. 	• Periscope • Inverted **Wider Offer** • Children apply their learning about shadows and their formation to the creation of a shadow puppet theatre. **Curriculum Threads**  Lessons are investigation-led. Pupils ask questions about how we see and explore the ways in which shadows can be created and manipulated.  Pupils consider the different ways in	• Safe handling of more varied electrical items and creation of own simple, functioning circuits. **Curriculum Threads**  All lessons are question-led. Pupils consider differing ways of constructing circuits and explore why there is a need for this variation.  Children consider variations in functionality of differing components of a circuit and suggest why variability is an essential feature of these items.	• Inheritance • Adaptation • Selective breeding • Natural selection • Genes • Genetics • DNA **Wider Offer** • Handling of fossils. **Curriculum Threads**  Lessons begin with a question that supports child-led investigation. Children explore the ways in which living things have changed over a period of time and suggest reasons for these adaptations. 	**Key Vocabulary** • Circulation • Aorta • Vena cava • Artery • Capillary • Deoxygenated • Oxygenated • Plasma • Platelets • Chamber • Valve • Ventricle • Atrium **Wider Offer** • Cross-curricular application of scientific learning in PE lessons. **Curriculum Threads**  Lessons are investigation-led. Pupils ask questions	

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	Pupils identify micro-organisms and recognise that some can be harmful to human health. **Fundamental British Values** Discussion around **Respect and Tolerance** when identifying the characteristics used to classify and group different species.	which living beings experience light and vision, including people of varied biological sex and age.  Pupils discuss the importance of keeping our eyes safe from the sun and opportunity to put into practice ways to mitigate this risk. Discussions around sunlight also offer opportunties to embed safe sun behaviours. **Fundamental British Values** **Respect and Tolerance** are considered when exploring the different ways in which people may experience light and vision, or may not	Pupils explore the harmful impact of the use of fossil fuels and recognise that minimising this is a universal responsibility.  Children learn about the dangers associated with electricity and learn how to protect themselves when using electrical equipment. Pupils discuss the negative effects of the use of fossil fuels upon the environment and their own physical health. **Fundamental British Values** **Individual Liberty** is discussed when children explore	Children explore the similarities and differences between parents and their offspring and between varied living beings. Pupils learn that, whilst families share DNA, there remains genetic diversity and differences in character even among members of the same family. Children discuss the varied needs of different species and explain why this variability is essential for the health and survival of all.  Children are taught both the positive and negative consequences of selective and cross-breeding of species.	about their own health and explore ways in which to maximise this.  Pupils consider whether characteristics including biological sex and age impact heart function, dietary requirements or physical ability.  Pupils learn about the impact of drugs including nicotine on the human body. Children investigate the requirements for healthy living and the potential impact of unhealthy behaviours.	

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		experience light and vision at all. **Individual Liberty** is raised as children consider that they have a right to choose the way in which they protect themselves from the potentially harmful impact of sun exposure.	different forms of electricity and recognise that they have the right to choose the quantity and type of power they use. The **Rule of Law** is referenced when fossil fuels are considered, as well as the steps governments are taking to reduce carbon consumption. **Democracy** may subsequently be raised as pupils consider from where governments making these decisions receive their mandates.	**Fundamental British Values Respect and Tolerance** are discussed as children learn that even within families there exist differences of genetics and personality. Conversations around selective and cross-breeding involve the **Rule of Law** as children are taught why some breeding choices are legally prohibited.	**Fundamental British Values Respect and Tolerance** are considered when exploring the different experiences people may have of heart health. **Individual Liberty** is raised as children learn they have the right to choose how they support their own health. The **Rule of Law** is an essential element of learning about drug use.	