

Wolds Federation Key Stage One Core Science knowledge

EYFS	Understanding the World The Natural World	ELG
		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.
Year 1	Unit	Core knowledge
	Animals, Including Humans	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
	Materials	Describe the simple physical properties of a variety of everyday materials Compare and group together a variety of everyday materials on the basis of their simple physical properties Distinguish between an object and the material from which it is made.
	Seasonal Change	Observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies.
	Plants	Plants grow from bulbs/seeds. Plants need light and water to grow and survive Plants are important We can eat a lot of plants
Year 2	Unit	Core Knowledge
	End of KS1 Working Scientifically:	Ask their own questions about what they notice use different types of scientific enquiry to gather and record data, using simple equipment where appropriate to answer questions including: - observing changes over time - noticing similarities, differences and patterns - grouping and classifying things - carrying out simple comparative tests - finding things out using secondary sources of information - communicate their ideas, what they do and what they find out in a variety of ways
	Animals	Describe the importance of exercise, balanced diet and hygiene for humans. Describe the basic needs of animals for survival. Describe the main changes as young animals, including humans, grow into adults.
	Living things	Identify whether things are alive, dead or have never lived. Describe how animals get their food from other animals and/or from plants, and use simple food chains to describe these relationships. Describe how different plants and animals are suited to different habitats.
	Materials	Identify and group everyday materials, and compare their suitability for different uses.
	Plants	Describe the main changes as seeds and bulbs grow into mature plants

		Describe basic needs of plants for survival and the impact of changing these
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Year 3	Unit of Science	Core knowledge
	Animals	identify that humans and some other animals have skeletons and muscles for support, protection and movement
	Plants	Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers Investigate the way in which water is transported within plants
	Rocks	Compare and group together different kinds of rocks on 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
	Light	Light comes from a source Transparent materials let light through them and opaque materials don't let light through Find patterns in the way that the size of shadows change
	Forces and Magnets	Predict whether two magnets will attract or repel each other, depending on which poles are facing
Year 4	Unit	Core Knowledge
	Animals	Describe the simple functions of the basic parts of the digestive system in humans Construct and interpret a variety of food chains, identifying producers, predators and prey
	Living things	Living things can be divided into groups based upon their characteristics Recognise that environments can change and that this can sometimes pose dangers to living things
	States of matter	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 Celsius (°C) Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature
	Sound	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
	Electricity	A source of electricity (mains or battery) is needed for electrical devices to work. Electricity sources push electricity round a circuit. More batteries will push the electricity round the circuit faster. Devices work harder when more electricity goes through them. A complete circuit is needed for electricity to flow and devices to work. Some materials allow electricity to flow easily and these are called conductors. Materials that don't allow electricity to flow easily are called insulators.

Wolds Federation Upper Key stage 2 – Core Science Knowledge

Year 5	Unit of Science	Core knowledge
	Living Things	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
	Materials	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 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
	Earth and Space	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
	Forces and Magnets	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
Year 6	Unit	Core Knowledge
	End of KS2 Working Scientifically	Describe and evaluate their own and other people's scientific ideas related to topics in the national curriculum (including ideas that have changed over time), using evidence from a range of sources Ask their own questions about the scientific phenomena they are studying, and select and plan the most appropriate ways to answer these questions, or those of others, recognising and controlling variables where necessary - including observing changes over different periods of time, noticing patterns, grouping and classifying things, carrying out comparative and fair tests, and finding things out using a wide range of secondary sources of information. Use a range of scientific equipment to take accurate and precise measurements or readings, with repeat readings where appropriate Record data and results using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs Draw conclusions in different forms, and raise further questions that could be investigated, based on their data and observations Raise further questions that could be investigated, based on their data and observations
	Animals	Describe the effects of diet, exercise, drugs and lifestyle on how the bodies functions Name and describe the functions of the main parts of the circulatory system in animals

	Living things	Use the observable features of plants, animals and micro-organisms to group, classify and identify them into broad groups, using keys or other methods <i>Supporting information:</i> • <i>Variation exists within a population (and between offspring of some plants)</i> • <i>Organisms best suited to their environment are more likely to survive long enough to reproduce.</i> • <i>Organisms are best adapted to reproduce are more likely to do so.</i> • <i>Organisms reproduce and offspring have similar characteristic patterns.</i> • <i>Competition exists for resources and mates.</i>
	Evolution	Use the basic ideas of inheritance, variation and adaptation to describe how living things have changed over time and evolved; and describe how fossils are formed and provide evidence for evolution <i>Supporting Information:</i> • <i>Life cycles have evolved to help organisms survive to adulthood.</i> • <i>Over time the characteristics that are most suited to the environment become increasingly common.</i>
	Light	Use the idea that light from light sources, or reflected light, travels in straight lines and enters our eyes to explain how we see objects, and the formation, shape and size of shadows
	Electricity	Use simple apparatus to construct and control a series circuit, and describe how the circuit may be affected when changes are made to it; and use recognised symbols to represent simple series circuit diagrams <i>Supporting information:</i> • <i>Batteries are a store of energy. This energy pushes electricity round the circuit. When the battery's energy is gone it stops pushing. Voltage measures the 'push.'</i> • <i>The greater the current flowing through a device the harder it works.</i> • <i>Current is how much electricity is flowing round a circuit.</i> • <i>When current flows through wires heat is released. The greater the current, the more heat is released.</i>