

Why do we teach science and what does it look like in our school?

At Oasis Academy Fir Vale we aim to give all our pupils a strong understanding of the world around them, together with the acquisition of the knowledge and skills to help them think scientifically, gain an understanding of scientific processes and also an understanding of the uses and implications of science, today and for the future. Through science all pupils learn to be curious, question, investigate, test and explain.

Regardless of starting points, we provide practical, engaging, memorable sessions that all pupils can all access. Our high-quality science curriculum provides the knowledge for understanding the world through the specific disciplines of biology, chemistry and physics. In key stage 1 pupils are taught about the changing seasons, the importance of plants and the need to explore different materials. Knowledge is carefully sequenced so that new learning builds on what has been taught before. Our pupils are taught to understand how science can be used to explain what they have observed, make predictions and analyse cause and effect. We teach science in a practical way enabling children to develop their vocabulary and know and remember more. Learning is recorded in creative ways in either floor or science books, for example using masking tape and post it notes to create a graphs or tables. Children progress to recording independently relative to their stage of English acquisition.

Science – Sequencing & Progression

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Autumn 1 People	<u>Animals including Humans</u>	<u>Animals including Humans</u>	<u>Working Scientifically - Materials (Y2 Revisit)</u>	<u>Animals including Humans</u>	<u>Animals, including humans</u>	<u>Electricity Circulation</u>
	Identify, name, draw & label the basic parts of the human body & say which part of the body is associated with each sense <i>Naming & identify arms, head, legs, stomach Senses Name, draw & label.</i>	Notice that animals including humans have offspring that develop into adults. Find out about & describe the basic needs of humans for survival. Describe the importance for humans of exercise, eating the right amounts of different types of food & hygiene.	Identify & discuss the use of everyday materials. <i>Design an Anglo-Saxon home. Decide on best materials based weather proofing & durability.</i>	Describe the simple functions of the basic parts of the digestive system in humans. Identify the different types of teeth in humans & their simple functions.	Describe the changes as humans develop to old age <i>Investigate how quickly different materials rot/growth mould. How could you mummify an apple?</i>	Associate the brightness of a lamp or the volume of a buzzer with the number & voltage of cells used in the circuit. Compare & give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers & the on/off position of switches. Use recognised symbols when representing a simple circuit in a diagram.
Autumn 2 Structures	<u>Working Scientifically - Materials Seasons</u>	<u>Working Scientifically - Materials</u>	<u>Forces & Magnets</u>	<u>Science Focus – Electricity</u>	<u>Forces</u>	<u>Light</u>
	Distinguish between an object & the material from which it is made. Identify & name a variety of everyday materials. Describe the simple physical properties of a variety of everyday materials. Compare & group together a variety of every day materials on the basis of their simple physical properties.	Identify & compare the suitability of a variety of everyday materials for particular uses. Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting & stretching. <i>What should the people have built their houses from to avoid the Great Fire?</i>	Compare how things move on different surfaces. Notice that some forces need contact between two objects but magnetic forces act at a distance. Observe how magnets attract or repel each other & attract some materials & not others. Compare & group together a variety of everyday materials on the basis of whether they are attracted to a	Identify common appliances that run on electricity. Construct a simple series electrical circuit identifying & naming its basic parts, including cells, wires, bulbs, switches & 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.	Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth & the falling object. Identify the effects of air resistance, water resistance & friction that act between moving surfaces. Recognise that some mechanism, including levers, pulley & gears allow a smaller force to have a greater effect.	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 light 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 & then to our eyes. Use the idea that light travels in straight lines to explain why

	Observe changes across the four seasons.		magnet & identify some magnetic materials. Describe magnets as having two poles. Predict whether two magnets will attract or repel each other depending on which poles are facing.	Recognise that a switch opens & closes a circuit & associate this with whether or not a lamp lights in a simple series circuit. Recognise some common conductors & insulators & associate metals with being good conductors	What will make my vehicle travel the fastest? Gravity, air resistance & water resistance friction Levers pulley gears.	shadows have the same shape as the objects that cast them.
Spring 1 Science	<u>Every Day Materials</u>	<u>Materials</u>	<u>Light</u>	<u>Electricity</u>	<u>Properties & Changes of Materials</u>	<u>Living things & their habitats</u>
	Distinguish between an object & the material it is made from. Identify & name a variety of everyday materials including plastic, wood, glass, metal, water & rock. Describe the simple physical properties of everyday materials. <i>Waterproof testing Aqua man's Shield Distinguish between, name & compare every day object /material</i>	Identify & compare the uses of a variety of everyday materials including wood, metal, plastic, brick, rock, paper & cardboard for particular uses. Find out how the shapes of solid objects made from some materials can be changed. <i>Plastic, brick, rock, paper – find out how shapes of solid objects can be changed of some materials.</i>	Recognise that they need light in order to see things & that dark is the absence of light. Notice that light is reflected from surfaces. Recognise that light from the sun can be dangerous & 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 common appliances that run on electricity. Construct a simple series electrical circuit identifying & naming its basic parts including cells, wires, bulbs, switches & 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. Recognise that a switch opens & closes a circuit & associate this with whether or not a lamp lights in a simple series circuit. Recognise some common conductors & insulators & associate metals with being good conductors	Know that some materials will dissolve in liquid to form a solution, & describe how to recover a substance from a solution. Use knowledge of solids, liquids & gases to decide how mixtures might be separated, including through filtering, sieving & evaporating. Give reasons, based on evidence from comparative & fair tests, for the particular uses of everyday materials, including metals, wood & plastic. Demonstrate that dissolving, mixing & changes of state are reversible changes. Explain that some changes result in the formation of new materials, & that this kind of change is not usually reversible.	Describe how living things are classified into broad groups according to common observable characteristics & based on similarities & differences, including micro-organisms, plants & animals. Give reasons for classifying plants & animals based on specific characteristics. <i>Polar bear study</i>
Spring 2 Food	<u>Plants Seasons</u>	<u>Plants</u>	<u>Plants</u>	<u>States of Matter</u>	<u>States of Matter (Y4 revisit)</u>	<u>Animals including humans</u>
	Identify & name a variety of common garden plants, including deciduous & evergreen trees. Identify & describe the basic structure of a variety of common flowering plants, including trees. <i>Identify common garden plants Describe the Basic structure of common flowering plants in trees. Changes across 4 seasons & describe weather</i>	Observe how seeds grow into mature plants. Find out & describe how plants need water, light & a suitable temperature to grow & stay healthy. <i>Find out about light/water/temp to grow.</i>	Identify & describe the functions of different parts of flowering plants. Explore the requirement of plants for life & growth & 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. <i>Describe the different functions of flowering plants. (Link to world food) Explore requirements. Water is transported.</i>	Compare & group materials together according to whether they are solids, liquids or gases. Observe that some materials changes state when they are heated or cooled & measure the temperature at which this happens. <i>Compare & group materials solids, liquids, gases. Changing state Water cycle. Chocolate Crispy Buns</i>	Identify the part played by evaporation & condensation in the water cycle. <i>Evaporation of water & the water cycle. Hardness, solubility, transparency, conductivity Dissolving Separating Fair testing Explain changes.</i>	Recognise the impact of diet, exercise, drugs & lifestyle of the way bodies function. Describe the ways in which nutrients & water are transported within animals including humans.
Summer 1 Animals	<u>Animals</u>	<u>Habitats</u>	<u>Animals</u>	<u>Animals</u>	<u>Living Things</u>	<u>Evolution + Circulation</u>
	Identify & name a variety of common animals. Describe & compare the structure of a variety of common animals. Notice that animals have offspring which grow into adults. <i>Hatching chicks</i>	Identify that most living things live in habitats to which they are suited & describe how different habitats provide for the basic needs of different kinds of animals & plants & how they depend on each other. Identify & name a variety of animals in their habitats, including microhabitats. Describe how animals obtain their food from	Identify that humans & some other animals have skeletons & muscles for support, protection & movement. Identify that animals, including humans, need the right types & amount of nutrition & that they cannot make their own food, they get nutrition from what they eat.	Construct & interpret a variety of food chains. Recognise that living things can be grouped in a variety of ways. Explore & use classification keys to help group, identify & name a variety of living things in their local & wider environment. Recognise that environments can change & that this can sometimes post	Describe the differences in the lifecycles of a mammal, amphibian, insect & a bird. Describe the life process of reproduction in some plants & animals. Describe the changes as humans develop to old age. <i>Reproduction Life cycles of plants, amphibians & animals & birds & insects. Animals: Changes to old age.</i>	Recognise that living things have changed over time & that fossils provide information about living things that inhabited the Earth millions of years ago. Recognise that living things produce offspring of the same kind, but normally offspring vary & are not identical to their parents. Identify how animals & plants are adapted to suit their environment in different ways & that adaptation may lead to evolution. Identify & name the main parts of the human circulatory system & describe the functions of the blood vessels & blood.

		plants & other animals, using the idea of a simple food chain & identify & name different sources of food. <i>Growing butterflies</i>	Skeletons / muscles – comparing animal & human. Comparing nutrients for animals & humans	dangers to living things. Grouping & classifying, Environments can change. Food chains & predators & prey.		
Summer 2 Places	<u>Animals</u>	<u>Living Things & Habitats</u>	<u>Rocks</u>	<u>Sound</u>	<u>Earth & Space</u>	<u>Evolution</u>
	Identify & name a variety of common animals. Identify & name a variety of common animals that are carnivores, herbivores & omnivores. Describe & compare the structure of a variety of common animals.	Explore & compare the differences between things that are living, dead & things that have never been alive. Identify that most living things live in habitats to which they are suited & describe how different habitats provide for the basic needs of different kinds of animals & plants & how they depend on each other. Identify & name a variety of plants & animals in their habitats. Describe how animals obtain their food from plants & other animals using the idea of a simple food chain & identify & name different sources of food.	Compare & group together different kinds of rocks on the basis of their appearance & 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 & organic matter <i>Compare & group.</i> <i>Fossils</i> <i>Soils is rocks</i>	Identify how sounds are made, associating some of them with something vibrating. Recognise vibrations from sounds travel through a medium to the ear. Find patterns between the pitch of a sound & features of the object that produced it. Find patterns between the volume of a sound & the strength of the vibrations that produced it. Recognise that sounds get fainter as the distance from the sound source increases	Describe the movement of the Earth, & other planets, relative to the Sun in the solar system. Describe the movement of the Moon relative to the Earth. Describe the Sun, Earth & Moon as approximately spherical bodies. Use the idea of the Earth's rotation to explain day & night & the apparent movement of the sun across the sky	Recognise that living things have changed over time & that fossils provide information about living things that inhabited the Earth millions of years ago. Recognise that living things produce offspring of the same kind, but normally offspring vary & are not identical to their parents. Identify how animals & plants are adapted to suit their environment in different ways & that adaptation may lead to evolution.