

Y5 Science		TERM 1		TERM 2A		TERM 2B		TERM 3A		TERM 3B	
	Working scientifically	Earth and space		Sound		Changing materials		Living things and their habitats		Keeping healthy	
		Visits: Royal Observatory workshops—Spring term linked to Earth, Sun and Moon—two online						Visits: Kew Gardens—Summer term—pollination and fertilisation/Marianne North workshop			
	<p>Key skills</p> <p>To be able to plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</p> <p>To be able to take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.</p> <p>To be able to record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</p> <p>To be able to use test results to make predictions to set up further comparative and fair tests.</p> <p>To be able to report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.</p> <p>To be able to identify scientific evidence that has been used to support or refute ideas or arguments.</p> <p>Trips/Workshops Royal Observatory workshops—Spring term linked to Earth, Sun and Moon—two online.</p> <p>Kew Gardens—Summer term—pollination and fertilisation/Marianne North workshop.</p>	<p>Key knowledge</p> <p>To know the Sun is a star. Its burning gases produce sunlight. The Sun’s gravity holds the planets in orbits around it.</p> <p>To know we live on a small planet, the third of eight that orbits around the Sun.</p> <p>To know together, the Sun and planets make up our solar system.</p> <p>To know the Sun, Earth and Moon are approximately spherical bodies. The Earth spins through one complete turn in a day. This produces sunrise, daylight, sunset and night and causes the apparent movement of the sun across the sky.</p> <p>To know the Earth goes around the Sun once a year. This produces the seasons – spring, summer, autumn and winter.</p> <p>To know the seasons are caused by the way the Earth is tilted. The northern hemisphere has summer when it is tilted towards the Sun. The northern hemisphere has winter when it is tilted away from the Sun.</p> <p>To know the Moon takes just over 28 days to go around, or orbit, the Earth. The way we see the Moon depends upon how we see the light it reflects from the Sun.</p> <p>To know the Earth is about 4 times as wide as the Moon. The Sun is about 100 times as wide as the Earth.</p>	<p>Key skills</p> <p>To be able to ask questions.</p> <p>To be able to model the movement of the Earth and moon with a 2D model and with drama.</p> <p>To be able to identify scientific evidence used to support or refute the idea that the Earth is a sphere.</p> <p>To be able to observe the phases of the moon over time.</p> <p>To be able to record seasonal variations.</p> <p>To be able to record data in a table.</p> <p>To be able to interpret data in a table (sunrise and sunset times).</p> <p>To be able to research the contributions of historical scientists to our current understanding.</p> <p>To be able to seek patterns in the seasons, the phases of the moon, sunrise and sunset times.</p> <p>To be able to formulate questions to further understanding.</p>	<p>Key knowledge</p> <p>To know sounds are caused by a material vibrating.</p> <p>To know for sounds to travel they require a medium to pass through, which can be a solid, liquid or gas.</p> <p>To know we hear sounds because the vibrations produced by the source pass through the air. When they reach our ears, they cause our eardrums to vibrate, stimulating the nerve endings in the ear so we hear the sound.</p> <p>To know the pitch of a sound can be high or low.</p> <p>To know the speed of the vibrations is known as their frequency.</p> <p>To know the higher the frequency, the higher the pitch.</p> <p>To know generally, larger objects will vibrate more slowly and produce lower notes.</p> <p>To know sounds can also be loud or quiet - the volume of the sound. The loudness of a sound depends on how strong the vibrations are.</p> <p>To know the size of vibrations is called the amplitude.</p> <p>To know the higher the amplitude, the stronger the vibrations, the louder the sound.</p> <p>To know sound is measured in decibels (dB).</p> <p>To know as the vibrations pass through the air away from the source, the vibrations become weaker and the volume decreases.</p>	<p>Key skills</p> <p>To be able to ask questions.</p> <p>To be able to find patterns between the volume of a sound and the strength of the vibrations that produced it.</p> <p>To be able to record observations of volume and pitch on a sound map.</p> <p>To be able to predict volume of an instrument.</p> <p>To be able to measure volume of instruments using a data recorder.</p> <p>To be able to interpret and communicate results.</p> <p>To be able to find patterns between the pitch of a sound and features of the object that produced it.</p> <p>To be able to plan and carry out a comparative test to see which material best muffles sound.</p> <p>To be able to record and interpret results.</p> <p>To be able to evaluate the test.</p>	<p>Key knowledge</p> <p>To know there are three states of matter: solids, liquids and gases.</p> <p>To know in a solid, all the particles are locked together.</p> <p>To know in liquids, particles can slide past each other.</p> <p>To know in gases, particles are free to move about.</p> <p>To know when something melts, freezes or evaporates, the only change is in the way the particles of the substance are held together.</p> <p>To know changes of state occur as a result of heating or cooling. They affect the properties of the substance but not its chemical make-up. Changes of state are reversible.</p> <p>To know boiling is the process where bubbles form inside a heated liquid. The bubbles are full of the vapour (gas) from the liquid.</p> <p>To know evaporation—particles of liquid escape into the air. Evaporation needs a source of energy.</p> <p>To know different factors affect the rate of evaporation, including temperature.</p> <p>To know condensation—a gas changes state into a liquid.</p> <p>To know condensation occurs on cold surfaces, because they take the heat from the air.</p> <p>To know water in our atmosphere moves in the water cycle: heat from the sun evaporates</p>	<p>Key skills</p> <p>To be able to ask questions.</p> <p>To be able to identify, group and classify substances into solids, liquids and gases.</p> <p>To be able to communicate changes of state using a diagram.</p> <p>To be able to plan, carry out and evaluate a fair test of how surface area affects the rate of evaporation of water.</p> <p>To be able to recognise and control variables and take accurate measurements.</p> <p>To be able to present results in a line graph.</p>	<p>Key knowledge</p> <p>To know animal life cycles: a life cycle is made up of a series of developmental changes that an organism goes through, as they are born, grow, develop to adulthood, reproduce, reach old age and die.</p> <p>To know humans go through many changes as we develop to old age. The stages of the life cycle and length of that cycle vary, depending on the type of animal.</p> <p>To know mammals give birth to live young.</p> <p>To know amphibians spend part of their life in water and part of their life on land.</p> <p>To know insect life cycles vary, but most insects hatch from eggs.</p> <p>To know birds lay eggs that have hard shells and hatch out after incubation.</p> <p>To know plant life cycles include sexual reproduction in flowering plants, which involves pollination, seed formation and seed dispersal.</p> <p>To know the female part of a flower consists of the carpels, where the seeds are formed. It has three parts: the stigma, the style, and the ovary.</p> <p>To know the male parts of the flower are the stamens, which produce pollen. Each stamen has an anther and a filament.</p> <p>To know the anther contains the pollen and the filament supports the anther.</p> <p>To know Marianne North (1830—1890)</p>	<p>Key skills</p> <p>To be able to ask questions.</p> <p>To be able to label a scientific diagram of a flower.</p> <p>To be able to communicate information on life cycles through drawing diagrams.</p> <p>To be able to recognise patterns in data on life cycles of humans and other mammals, using a scatter graph.</p> <p>To be able to identify changes in puberty.</p>	<p>Key knowledge</p> <p>To know the main parts of the circulatory system are the heart, blood vessels (arteries, veins and capillaries) and blood.</p> <p>To know blood transports gases, nutrients, water and waste products around the body.</p> <p>To know the health of humans can be adversely affected by poor diet; exposure to disease-causing micro-organisms; exposure to harmful substances (alcohol, tobacco, drugs and solvents); lack of exercise, rest and sleep; stress.</p> <p>To know regular exercise strengthens muscles including the heart; increases the amount of oxygen around the body; helps you sleep more easily; strengthens bones; releases brain chemicals which help you feel calm and relaxed.</p> <p>To know exercise raises heart rate.</p> <p>To know a healthy diet involves eating the right types of nutrients in the right amount.</p> <p>To know Marie Maynard Daly (1921—2003) discovered the link between heart health and cholesterol.</p>	<p>Key skills</p> <p>To be able to ask questions.</p> <p>To be able to communicate information on circulatory system using labelled diagrams.</p> <p>To be able to set up a comparative test, observe, measure and record data on a graph. Interpret results.</p>

			To know Katherine Johnson, Claudius Ptolemy, Nicolaus Copernicus and Galileo Galilei all contributed to our modern understanding of space.		To know Alexander Bell (1847—1922) invented the telephone.		water, which rises, condenses in the cool air to form clouds and falls back down to earth. To know Stephanie Kwolek (1923—2014) invented Kevlar, an extremely strong, heat-resistant synthetic fibre.		travelled widely and contributed to our understanding of botany.			
	Key vocabulary (tier 2) animal blood diagram flower fruit gas heart liquid moon planet plant regular solid star strengthen sun	Key vocabulary (tier 3) adversely micro-organism nutrients solvents	Key vocabulary (tier 2) apparent approximately cause contribute contributions daylight depend evidence gas identify interpret model Moon observe pattern planet produce record refute seasons sphere spherical star Sun sunlight sunrise sunset support table tilt	Key vocabulary (tier 3) asteroid comet galaxy gravity Milky Way orbit phases of the Moon reflect rotate solar system universe	Key vocabulary (tier 2) communicate comparative eardrums evaluate features gas instruments liquid loudness material medium muffle nerve endings solid sound speed volume	Key vocabulary (tier 3) amplify amplitude echo frequency insulator particle pitch sound wave stimulate tuning fork vacuum vibration	Key vocabulary (tier 2) accurate atmosphere chemical cooling diagram energy factor free gas heating liquid occur properties rate recognise result reversible slide solid source substance temperature water cycle	Key vocabulary (tier 3) Boil change of state condense dissolve evaporate freeze line graph melt particle solidify solution surface area variable	Key vocabulary (tier 2) adulthood amphibian animal change develop development flower fruit hatch insect life cycle mammal plant series stage	Key vocabulary (tier 3) anther carpel fertilisation filament germination incubation metamorphosis organism ovary photosynthesis pollen pollination puberty reproduce seed dispersal sexual reproduction stamen stigma style	Key vocabulary (tier 2) blood diet disease drugs exposure heart regular strengthen substance transport waste	Key vocabulary (tier 3) adversely aorta artery atrium blood vessels capillary cholesterol circulation lungs micro-organism nutrients pulse rate solvents valves vein ventricle