

Science Year 8 Curriculum overview

		Year 8
Autumn 1	Topic	Biology strand 1 – Living systems
	Content covered, including knowledge and skills.	Organelles featured in plant and animal cells. Cell specialisation, Different organ systems, photosynthesis and disease
	Links to prior learning.	Year 7 – Living systems (Lesson based around basic knowledge of cells and systems) KS2 – Living organisms
	Links to British Values, SMSC and work-related learning	SMSC – Cell biology and its importance within drug and vaccine development WRL – Scientific research jobs/Doctors/nurses/Engineers
	Literacy: Key words and terminology	Cell wall, organ systems, Nucleus, Cell membrane, cytoplasm, Chloroplast, vacuole, photosynthesis
	Topic	Physics Strand 1 – Energy
	Content covered, including knowledge and skills.	The conservation of energy, conduction, convection, radiation, the cost of energy and density.
	Links to prior learning.	Year 7 Energy strand to be consolidated at the beginning of teaching this topic. Upper KS2 – Electricity (flow of energy.)
	Links to British Values, SMSC and work-related learning	Cultural capital: Understanding energy bills and voiding overpayment or debt. How miners kept a fresh air flow. Fashion links in terms of coloured clothing. Cross curricular: Links to population density in geography.

Science Year 8 Curriculum overview

	Literacy: Key words and terminology	Density, Mass, Volume, Conservation, Conduction, Convection, Radiation, Particle theory, Power.
Autumn 2	Topic	Chemistry strand 1 – Substances and properties
	Content covered, including knowledge and skills.	Comparing Solubilities; Acids and alkalis; pH scale
	Links to prior learning.	Y7 C1, C2 and C3
	Links to British Values, SMSC and work-related learning	Making indicators from everyday plants. Classifying common products as acid or alkali
	Literacy: Key words and terminology	Solution; solubility; saturated
	Topic	Biology Strand 2 - Ecology
	Content covered, including knowledge and skills.	Feeding relationships and mechanisms, respiration, photosynthesis, adaptations, biodiversity and habitat sampling
	Links to prior learning.	Year 7 Ecology, Year 4 (food chains) and Year 6 (adaptations)
	Links to British Values, SMSC and work-related learning	Agriculture, scientific research, role of ecologists in sampling, food security (in terms of pollinators), human impact, evolution.
	Literacy: Key words and terminology	Energy transfer, mitochondria, lactic acid, aerobic, anaerobic, adaptations, populations, sampling, biodiversity, pollination, EA, DEFRA, environmental impacts.
Spring 1	Topic	Physics Strand 2 – Waves and Fields

Science Year 8 Curriculum overview

	Content covered, including knowledge and skills.	Longitudinal and Transverse waves, Ultrasound, The Electromagnetic Spectrum, Parallel circuits, Magnetism and Electromagnetism.
	Links to prior learning.	Year 7 - Waves and fields strand and KS2 Light and Electricity.
	Links to British Values, SMSC and work-related learning	Cultural Capital: Understanding how a range of electronic devices work. British Values: Recycling products and reducing energy consumption. Careers link: Emergency services and Scrapyard and metal recycling.
	Literacy: Key words and terminology	Longitudinal, Transverse, Oscillation, Frequency, Wavelength, Ultrasound, Electromagnetic spectrum, GXULIMR, Current, Potential Difference, Resistance.
	Topic	Chemistry strand 2 – Particles and structure
	Content covered, including knowledge and skills.	Atoms; elements; compounds; chemical equations
	Links to prior learning.	Y7 C2 and C3
	Links to British Values, SMSC and work-related learning	Everything is made from atoms- why there is a large range of different materials.
	Literacy: Key words and terminology	Atom; element; compound
Spring 2	Topic	Biology Strand 3 - Genetics and Inheritance
	Content covered, including knowledge and skills.	Human Reproductive System, Menstruation, Heredity, Fertilisation, Pregnancy

Science Year 8 Curriculum overview

	Links to prior learning.	Year 7: Reproduction in plants and animals
	Links to British Values, SMSC and work-related learning	British Values & Cultural Capital: Reproductive rights Careers: Social Work; Counselling; Early Childhood positions. Medic.
	Literacy: Key words and terminology	Puberty, Adolescence, Gametes, Fertilisation, Implantation, Placenta, Heredity, Genes, Glands, Sperm ducts, Urethra, Penis, Testes, Oviducts, Ovaries, Uterus, Cervix, Vagina
	Topic	Physics Strand 3 – Forces and their effects
	Content covered, including knowledge and skills.	Contact and non-contact forces, Force pairs, Distance time graphs, Atmospheric pressure
	Links to prior learning.	Year 7 – Forces and their effects strand. Upper KS2 – Forces – This includes ideas about gravity, friction and levers
	Links to British Values, SMSC and work-related learning	Careers link: Civil Engineering and Aviation
	Literacy: Key words and terminology	Newton, Force, Resultant, Distance, Time, Speed, Pressure, Area, Density, Collisions.
Summer 1	Topic	Chemistry strand 3 – Chemical Reactions
	Content covered, including knowledge and skills.	Combustion and fuels; exothermic and endothermic reactions
	Links to prior learning.	Y7 C2, 3 and 4

Science Year 8 Curriculum overview

	Links to British Values, SMSC and work-related learning	Career profile: environmental chemist; biofuel engineer Consequences of energy use
	Literacy: Key words and terminology	Exothermic; endothermic; combustion
	Topic	Biology 4 Evolution and Biodiversity
	Content covered, including knowledge and skills.	Genetic and Environmental Variation, Measuring Variation, Why variation is important
	Links to prior learning.	Year 7 Classifying organisms based on similarities and difference
	Links to British Values, SMSC and work-related learning	British Values: Mutual Respect and Tolerance for differences Careers: Primatologist, fossil hunter, conservationist Cultural Capital: Understanding the need to maintain diversity, seed banks.
	Literacy: Key words and terminology	Variation, Continuous & Discontinuous, Survival of the Fittest, Extinction
Summer 2	Topic	Physics Strand 4 - Astronomy and Radioactivity
	Content covered, including knowledge and skills.	The Universe, The Big Bang, Possible ways the universe could end, Focus on a Black Scientist and Life on other planets.
	Links to prior learning.	Year 7 – Astronomy and Radioactivity strand KS2 – Space Physics – The main features of the solar system.

Science Year 8 Curriculum overview

<p>Links to British Values, SMSC and work-related learning</p>	<p>British Values: Tolerance of other cultures and values. Representation of BAME Scientists. Cultural Capital: Understanding the achievements and contributions of British Scientists Careers link: The armed forces, NASA, Space X and SETI.</p>
<p>Literacy: Key words and terminology</p>	<p>Stars, Planets, Galaxies, Satellites, Axis, Tilt, telescopes, The Big Bang, CMBR, Red shift.</p>
<p>Topic</p>	<p>Chemistry strand 4 – Earth Chemistry</p>
<p>Content covered, including knowledge and skills.</p>	<p>Air pollution, acid rain, chemical weathering.</p>
<p>Links to prior learning.</p>	<p>Y7 C4</p>
<p>Links to British Values, SMSC and work-related learning</p>	<p>Links to Geography. Focus on a career: Geologists and chemical engineer. Cultural capital: The impacts of using fossil fuels especially containing sulfur impurities and why it's important to seek out alternatives and to live as sustainably as we can as individuals.</p>
<p>Literacy: Key words and terminology</p>	<p>Acid, sulfur dioxide, pH, chemical weathering, erosion, pollution, greenhouse gases non-renewable resource, finite, fossil fuels, renewable resource</p>