

SMSC in Science Headlands School 7 Year Curriculum

The science curriculum is taught with increasing complexity from Y7 to Y13 but we have divided it into 18 topics that are taught across all key stages. So whilst the content and knowledge of science may change we revisit the SMSC content with each revisit to a topic.

Topic	Spiritual	Moral	Social	Cultural
Cell Biology and respiration	High- Activities in topic develop students' metacognition in their learning of the cell organelle and the role they have in the different types of cells for different organisms, Student will use high order thinking to link what they can observe to the role cells have in the fundamental life equations Respiration	Minimal- Students develop a sense of right and wrong as well as consequences for their actions through effective use of the behaviour policy and classroom expectations.	High- To complete topic work students must engage in teamwork and develop communication skills to complete practical experiment along with development of communication in group work activities and presentation of what they have found out	Medium- Activities draws on cultural influences within a non-cultural topic to celebrate the diverse cultures within Britain. With a look at the scientists and history involved in the development of our understanding of the cell, including Hooke, Rosalind Franklin and Watson and Crick
Atomic Structure	Medium- Students will develop reflective skills on their own learning and progress through Headlands' High Impact Teacher (HIT) feedback and Make It Stick (MIS) activities.	Medium- Activities in the topic include debate where students develop an application of others viewpoints. As students look at the development of the Atom from Dalton to Bohr etc.	High- To complete topic work students must engage in teamwork and develop communication skills to complete practical experiments. And how they link to key understanding of elements compounds and mixtures	Medium- Activities draws on cultural influences within a non-cultural topic to celebrate the diverse cultures within Britain. As we look at Historical figures in science Aristotle, Dalton, Thompson, Rutherford, Bohr, Chadwick. And the development of the periodic table and how it allows all Chemists to communicate despite language barriers

<p>Energy</p>	<p>High- Topic specifically requires students' engagement in creativity and imagination in discussion of how energy is transferred and stored and how we can make this transfer as efficient as possible, to create a sustainable future</p>	<p>Medium- Activities in the topic include debate where students develop an application of others viewpoints. With a closer look at the use of energy resources looking at the need to balance needs with the viewpoints of all interested parties.</p>	<p>High- To complete topic work students must engage in teamwork and develop communication skills to debate on different energy resources</p>	<p>High- Topic develops students' understanding of other diverse cultures through how we look at how different countries have dealt with how they generate energy and some of the policies behind the decisions.</p>
<p>Organisation and Photosynthesis</p>	<p>High- Activities in topic develop students' metacognition in their learning of organ systems linked to cells and organism functions including adaptations and linkages to respiration and photosynthesis</p>	<p>Minimal- Students develop a sense of right and wrong as well as consequences for their actions through effective use of the behaviour policy and classroom expectations.</p>	<p>High- To complete topic work students must engage in teamwork and develop communication skills to complete practical experiments ; dissections or organ systems and investigate enzymes and factors that affect photosynthesis</p>	<p>High- Students required to draw inspiration of cultural perspective/pursuits through studying health and diet with links to sport and cultural choices from veganism and vegetarianism to high levels of exercise and issues with substance abuse</p>
<p>Bonding</p>	<p>Medium- Students will develop reflective skills on their own learning and progress through Headlands' High Impact Teacher (HIT) feedback and Make It Stick (MIS) activities.</p>	<p>Minimal- Students develop a sense of right and wrong as well as consequences for their actions through effective use of the behaviour policy and classroom expectations.</p>	<p>High- To complete topic work students must engage in teamwork and develop communication skills to complete practical experiments; looking at properties of compounds compared to elements and different properties due to different bonds having to present results and explain what they have observed.</p>	<p>Minimal- Activities limited to links to other topic areas like the use of bond energies to explain the use of hydrocarbons and fuels</p>
<p>Electricity</p>	<p>High- Topic specifically requires students' engagement in creativity and imagination in the modelling of electrical circuits to</p>	<p>Minimal- Students develop a sense of right and wrong as well as consequences for their actions through effective use of the</p>	<p>High- To complete topic work students must engage in teamwork and develop communication skills to complete practical experiment, on electrical</p>	<p>Medium- Activities draws on cultural influences within a non-cultural topic to celebrate the diverse cultures within Britain. Looking at historical scientists</p>

	visulise the key vocab and explain observed phenomena	behaviour policy and classroom expectations.	circuits and component explaining their application in the real world e.g LDRs and Thermistors	Volta, Faraday Thompson, Ohm, Tesla and Eddison. Looking into how electricity has been studied in the past.
Infection and Response	High- Topic develops students' understanding of different beliefs/faiths through discussion of different viewpoints on vaccinations and treatment of infection and prevention of infection	Medium- Activities in the topic include debate where students develop an application of others viewpoints. With respect to vaccination and disease treatment and prevention.	High- Topic develops students' tolerance and acceptance of other cultures through discussion of different viewpoints on vaccinations and treatment of infection and prevention of infection.	High- Topic develops students' understanding of other diverse cultures through discussion of different viewpoints on vaccinations and treatment of infection and prevention of infection.
Quantitative	High- Activities in topic develop students' metacognition in their learning of practical analysis of chemicals linking experimental results to calculations to determine facts about chemicals. Eg. conservation of mass, molarity , Rf value, Gas tests	Minimal- Students develop a sense of right and wrong as well as consequences for their actions through effective use of the behaviour policy and classroom expectations.	High- To complete topic work students must engage in teamwork and develop communication skills to complete practical experiments; chromatography, titrations, pH scale investigation, conservation of mass, gas tests	Minimal- Activities limited to links of how used in society
Particles	High- Activities in topic develop students' metacognition in their learning by the creation of links between abstract theory of unseen particle model into behaviour of material	Minimal- Students develop a sense of right and wrong as well as consequences for their actions through effective use of the behaviour policy and classroom expectations.	High- To complete topic work students must engage in teamwork and develop communication skills to complete practical experiments; SHC, SLH, and Cooling curves,	High- Students require to draw inspiration of cultural perspective/pursuits through the look at the historic use of Nuclear and the disaster at chernobyl has to be explained with the politics of 1986 explained, CERN and the politics of scientific collaboration today. In terms of Nuclear power
Homeostasis	Medium- The topic develops students' empathy through the study of different topics within	Minimal- Students develop a sense of right and wrong as well as consequences for their actions	High- Topic develops students' understanding of mental health issues through discussion of the	High- Topic develops students' understanding of other diverse cultures through discussion of

	Homeostasis - Thermoregulation, Brain, eye and diabetes and the endocrine system	through effective use of the behaviour policy and classroom expectations.	impact imbalances in the bodies Homeostasis ability affect a person's mental wellbeing	impact of lifestyle choices on the body
Rates and Equilibria	High- Activities in topic develop students' metacognition in their learning by linking abstract ideas to everyday phenomena in explaining reactions and how they are upscaled for industrial use based on what is observed in chemistry lab.	Minimal- Students develop a sense of right and wrong as well as consequences for their actions through effective use of the behaviour policy and classroom expectations.	High- To complete topic work students must engage in teamwork and develop communication skills to complete practical experiments; rates of reactions, exothermic and endothermic, effects of catalysts, thermal decomposition and combustion	Minimal- Activities limited to links of how used in society
Forces	High- Topic specifically requires students' engagement in creativity and imagination in problem solving scenarios to overcome forces in the most efficient way possible	Minimal- Students develop a sense of right and wrong as well as consequences for their actions through effective use of the behaviour policy and classroom expectations.	High- To complete topic work students must engage in teamwork and develop communication skills to complete practical experiments; Hooke's law, and $F=ma$	Medium- Activities draws on cultural influences within a non-cultural topic to celebrate the diverse cultures within Britain. Looking at historical scientists Hooke and Newton
Inheritance	High- Topic develops students' understanding of different beliefs/faiths through the discussion of reproduction, contraception, IVF and stem cell research	Medium- Activities in the topic include debate where students develop an application of others viewpoints. In terms of Stem cell research and IVF and contraception.	High- Topic develops student' tolerance and acceptance of other cultures through discussion of IVF, reproduction, Stem cell research and contraception	Medium- Activities draws on cultural influences within a non-cultural topic to celebrate the diverse cultures within Britain. With a look at the scientists and history involved in the development of our understanding genetics including Hooke, Rosalind Franklin, and Watson and Crick
Electrolysis	High- Activities in topic develop students' metacognition in their	Medium- Activities in the topic include debate where students	High- To complete topic work students must engage in	Minimal- Activities limited to links of how used in society

and hydrocarbons	learning of small practical to large scale industrial application.	develop an application of others viewpoints. In the use of fossil fuels.	teamwork and develop communication skills to complete practical experiments; electrolysis, displacement, burning fuels	
Motion	Medium- Activities in this topic allow for imaginative thought in the design of vehicles for speed and why they are shaped how they are scientifically	Minimal- Students develop a sense of right and wrong as well as consequences for their actions through effective use of the behaviour policy and classroom expectations.	High- To complete topic work students must engage in teamwork and develop communication skills to complete practical experiments, speed and acceleration experiments, terminal v and calculation of g	Medium- Activities draws on cultural influences within a non-cultural topic to celebrate the diverse cultures within Britain. Looking at historical scientists Newton and application today in terms Elon musk and the Tesla car
Ecology	High- Topic develops students' understanding of different beliefs/faiths through the understanding of the planet's biodiversity and projects in place to maintain it	Minimal- Students develop a sense of right and wrong as well as consequences for their actions through effective use of the behaviour policy and classroom expectations.	High- To complete topic work students must engage in teamwork and develop communication skills to complete practical experiments, quadrats, transects, Students will also have to discuss and debate large scale conservation issues in relationship to Biodiversity conflicts of interest.	High- Students require to draw inspiration of cultural perspective/pursuits through studying of Biodiversity of the planet and the conflict with Humans in a variety of countries
The Earth	High- Topic develops students' understanding of different beliefs/faiths through the study of the Earth as a system and the role sustainable development has to play in our future	Medium- Activities in the topic include debate where students develop an application of others viewpoints. In the discussion of sustainable development and water purification in various situations	High- Topic develops students' understanding of individual liberty by reflecting on the role governments have in Climate change policies and how that affects our liberties as consumers in the world	High- Students require to draw inspiration of cultural perspective/pursuits through the look at the sustainable earth from the viewpoint of various sections of society
Waves	Medium- Students will develop reflective skills on their own	Minimal- Students develop a sense of right and wrong as well	High- To complete topic work students must engage in	High- Students require to draw inspiration of cultural

	learning and progress through Headlands' High Impact Teacher (HIT) feedback and Make It Stick (MIS) activities.	as consequences for their actions through effective use of the behaviour policy and classroom expectations.	teamwork and develop communication skills to complete practical experiments; Standing waves, water waves, and sound waves	perspective/pursuits through the look at the historic space race and the new one today and how politics actually play a large part in the science of collaboration.
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