

Culcheth High School Key Stage 3 Curriculum Map 2023- 2024

Science Year 9 Long Term Plan 2023-2024

25% Working Scientifically; 25% Biology, 25% Physics, and 25% Chemistry



	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
	These are the final KS3 topics before the end of KS3 assessment and then transition to KS4. They will be taught by one member of staff.		The transition to KS4 content occurs at this point. The 3 KS4 topics below will be taught on a rotation basis across the spring and summer terms.			
Key Concepts	Topic 1 – Energy recap Topic 2 – Metal Extraction Topic 3 - Space	Topic 3 – Sports Science, Genetics, inheritance and evolution Topic 5	Topic 1 Cell Biology	Topic 1 – Atomic Structure	Topic 1 - energy and 3 - particle model of matter	Topic 1 - energy and 3 - particle model of matter
Themes	<p>Topic 1 – recap: Energy transfers, kinetic theory and cell structure and function.</p> <p>Topic 2: Chemical reactions Elements, compounds and different chemical reactions</p> <p>Topic 3: Space Night, day, seasons, solar system and beyond</p>	<p>Topic 4: Genetics, inheritance, and evolution Chromosomes, DNA, inheritance, variation and maintaining biodiversity.</p>	<p>Topic 1: Biology Cell structure Cell differentiation Microscopy Cell division Cell division Stem cell Transport in cells Culturing microorganism</p> <p>Required practicals will be covered within the lesson</p>	<p>Topic 1: Chemistry Atoms, elements and compounds Development of the model of the atom Relative atomic mass Electronic structure Periodic table Group 0,1, 7 Properties of transition metals</p> <p>Required practicals will be covered within the lesson content</p>	<p>Topic 1: Physics Energy stores and systems Efficiency Specific Heat capacity</p> <p>Topic 3: Physics Density of materials Changes of state Specific latent heat Particle Motion in gases</p> <p>Triple science also covers: Pressure Static electricity</p> <p>Required practicals will be covered within the lesson content</p>	<p>Topic 1: Physics Energy stores and systems Efficiency Specific Heat capacity</p> <p>Topic 3: Physics Density of materials Changes of state Specific latent heat Particle Motion in gases</p> <p>Triple science also covers: Pressure Static electricity</p> <p>Required practical's will be covered within the lesson content</p>

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Writing Whole
school literacy focus

Scientific writing:

- Writing a plan, presenting findings, drawing a conclusion and evaluating a method
- Spelling and using scientific vocabulary in the correct context
- Understanding the different Prefixes and Suffixes of scientific vocabulary
- Use of capital letters and full stops

This is broken down in the following way:

Experimental skills and investigations

- ask questions and develop a line of enquiry based on observations of the real world, alongside prior knowledge and experience
- make predictions using scientific knowledge and understanding
- make and record observations and measurements using a range of methods for different investigations; and evaluate the reliability of methods and suggest possible improvements

Analysis and evaluation

- apply mathematical concepts and calculate results
- present observations and data using appropriate methods, including tables and graphs
- interpret observations and data, including identifying patterns and using observations, measurements and data to draw conclusions
- present reasoned explanations, including explaining data in relation to predictions and hypotheses
- evaluate data, showing awareness of potential sources of random and systematic error
- identify further questions arising from their results

Measurement

- understand and use SI units and IUPAC (International Union of Pure and Applied Chemistry) chemical nomenclature
- Use simple equations to represent reactions

Careers communication / Oracy

- Research and presentation in Space topic (Autumn term 2) and Energy resources topic (summer term 2)

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<p>Spiritual, Moral, Social and Cultural theme (SMSC) Fundamental British Values</p>	<p>Spiritual – pupils will explore space and reflect on the extent and nature of the universe and relationship to it.</p>	<p>Social and cultural – how scientific ideas and evidence have changed people’s beliefs over time are discussed.</p>	<p>In Biology in Year 9 we deal with SMSC and British values in the following areas:</p> <ul style="list-style-type: none"> ● Stem cells – Moral and social arguments for and against the use of Embryonic Stem cells. ● Impact of Non-communicable diseases – Diabetes, Heart disease and Cancer. ● Developing new drugs – The need for animal testing in preclinical drug trials. ● Monoclonal Antibodies – The use of Mice in the production of Monoclonal Antibodies. ● Spread of Malaria – Understanding of low Socio-economic areas have fewer resources to stop the spread. ● The publication by a doctor that the MMR vaccine is linked to autism without rigorous scientific testing and the implications of this on the health of a generation of children in the UK. ● The use of NHS money to fund treatment associated with obesity and drug/alcohol abuse ● The legal aspects of drug abuse ● The use of stem cells in reproductive research and the cure for inherited diseases ● Embryo selection <p>Morality of blood transfusion etc.</p> <p>In Chemistry in Year 9 we deal with SMSC and British values in the following areas:</p> <ul style="list-style-type: none"> ● Celebrate the British scientists involved with the discovery of the structure of the Atom. ● Cultural development - the periodic table <p>Cultural development – the importance of collaboration</p> <p>In Physics in Year 9 we deal with SMSC and British values in the following areas:</p> <ul style="list-style-type: none"> ● Listening to the viewpoints of different scientific groups and politicians ● How science is portrayed in the media Science in the news ● Spiritual - Mass conservation. If there is conservation of mass, what happens to particles ● Spiritual - Electrical safety, respect for the amazing and terrible power of nature <p>Spiritual - Conservation of energy. How (and why?) is there conservation of energy? What does this mean for nature?</p>
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Key Assessment Focuses, Suggested Assessments and Feedback Week	<p><u>QMt</u> 1 per topic Skills sheets</p>	<p><u>Combined science QMA</u> – Overall score for the 2 QMt's covered in the first 3 units of science so far – metal extraction and space .</p> <p><u>End of KS3 PPE</u> Overall assessment of year 7, 8 and 9 sciences for biology, chemistry and physics. This will help to inform option choices and setting for KS4. Practical, analytical skills focus see QMA handbook for list of topics.</p> <p>Skills sheets See QMA calendar for exact dates</p>	<p>QMAs will be completed on a rotation see QMA calendar</p> <p>Biology KS4 content QMA Chemistry KS4 content QMA Physics KS4 content QMA</p>		
	<p>In the Autumn term - One QMt (quality marked test) in each unit. QMA assessments for Autumn 1 will be average QMt scores. One end of KS3 QMA in Autumn 2 will assess all KS3 content covered and investigation skills. After each QMt individual feedback will be given and pupils will have an opportunity to act on feedback, improve their answers and correct them with red pen.</p> <p>From Spring 1 pupils will complete one QMA per unit. After each QMA individual feedback will be given and pupils will have an opportunity to act on feedback, improve their answers and correct them with red pen.</p> <p>Skills sheets will be code marked by referring to success criteria. 2 stars and a wish will also be given as feedback. Pupils will respond in red pen.</p> <p>Educake and revision homework set throughout each topic. Assessments will be based on content all classes have covered in line with each other.</p>				
Special Events	<p>Moon Watch 20th October 2022</p>			<p>National Science and Engineering Week 10th – 19th March 2023</p>	

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	Planetarium exact date TBC but will be between 10 th -21 st October 2022					
CEIAG Employability Strands	<p> Careers communication / Oracy <ul style="list-style-type: none"> ● Research and presentation in Space topic (Autumn term 1) and Energy resources topic (summer term 2) ● QWC science exam questions ● Science skills sheets </p> <p> Team work <ul style="list-style-type: none"> ● Practicals ● Oracy presentations ● Range of group activities throughout course e.g. think pair share, snowballing, debating, project based learning, talking triads, card sorts </p> <p> Negotiation and persuasions <ul style="list-style-type: none"> ● During practical activities and presentations </p> <p> Problem solving – working individually and with others to find solutions to problems. E.g. <ul style="list-style-type: none"> ● Practical skills ● data analysis, ● Comparison/Evaluate exam questions </p> <p> Leadership <ul style="list-style-type: none"> ● During practical activities and presentations </p> <p> Organisation <ul style="list-style-type: none"> ● Practical skills – planning, equipment list, implementation, time management ● Exam technique – time management ● Presentations – time management </p> <p> Perseverance and motivation <ul style="list-style-type: none"> ● Data analysis ● Evaluate exam questions ● Presentation </p> <p> Ability to work under pressure </p>					

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- Timed activities
- QMt's
- QMAs
- PPE