

Culcheth High School Key Stage 4 Curriculum Map 2023 - 2024

Subject: Physics Year 10

Exam Board: AQA




**CULCHETH
HIGH SCHOOL**
THE BEST THAT WE CAN BE

| | Autumn Term 1 | Autumn Term 2 | Spring Term 1 | Spring Term 2 | Summer Term 1 | Summer Term 2 |
|--------------|---|--|--|---|--|--|
| Key Concepts | Topics 1 - Energy | Topic 2- Electricity | Topics 2 and 4 – Electricity, Atomic Structure | Topics 4 and 5 – Atomic structure, Forces | Topics 5 - Forces | Topics 5 - Forces |
| Themes | <p>Topic 1</p> <ul style="list-style-type: none"> Energy stores and systems Changes in energy Efficiency Power Specific heat capacity Thermal insulation Energy resources <p>Required practicals will be covered within the lesson content</p> | <p>Topic 2</p> <ul style="list-style-type: none"> Circuit diagram Electrical charge Current Potential difference Resistors Series and parallel circuits Direct and alternating current Mains electricity Energy transfers Power The National grid <p>Triple science also covers</p> <ul style="list-style-type: none"> Static electricity Electric fields | <p>Topic 2</p> <ul style="list-style-type: none"> Circuit diagram Electrical charge Current Potential difference Resistors Series and parallel circuits Direct and alternating current Mains electricity Energy transfers Power The National grid <p>Topic 4</p> <ul style="list-style-type: none"> Structure of the atom The developments of the model of the atom | <p>Topic 4</p> <ul style="list-style-type: none"> Structure of the atom The developments of the model of the atom Radioactive decay and nuclear radiation Nuclear equations Half lives Radioactive contamination <p>Topic 5</p> <ul style="list-style-type: none"> Forces and their interactions Work done and energy transfer Forces and elasticity | <p>Topic 5</p> <ul style="list-style-type: none"> Forces and their interactions Work done and energy transfer Forces and elasticity Forces and motion Momentum <p>Triple Science also covers</p> <ul style="list-style-type: none"> Moments and levers Pressure Changes in momentum <p>Required practicals will be covered within the lesson content</p> | <p>Topic 5</p> <ul style="list-style-type: none"> Forces and their interactions Work done and energy transfer Forces and elasticity Forces and motion Momentum <p>Triple Science also covers</p> <ul style="list-style-type: none"> Moments and levers Pressure Changes in momentum <p>Required practicals will be covered within the lesson content</p> |

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| | | <p>Required practicals will be covered within the lesson content</p> | <ul style="list-style-type: none"> ● Radioactive decay and nuclear radiation ● Nuclear equations ● Half lives ● Radioactive contamination <p>Triple science also covers</p> <ul style="list-style-type: none"> ● Static electricity ● Electrical fields ● Background radiation ● Nuclear fission ● Nuclear fusion <p>Required practicals will be covered within the lesson content</p> | <ul style="list-style-type: none"> ● Forces and motion ● Momentum <p>Triple Science also covers</p> <ul style="list-style-type: none"> ● Background radiation ● Nuclear fission ● Nuclear fusion ● Moments and levers ● Pressure ● Changes in momentum <p>Required practicals will be covered within the lesson content</p> | | |
| <p>Writing whole school literacy focus</p> | <p>Scientific writing:</p> <ul style="list-style-type: none"> ● Writing a plan ● Drawing a conclusion ● Evaluating a method ● Presenting findings ● 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 | | | | | |
| <p>Spiritual, Moral, Social and Cultural theme (SMSC) Fundamental British Values</p> | <p>In Physics in Year 10 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. ● Listening to the viewpoints of different scientific groups and politicians ● The nuclear debate pro and cons ● How science is portrayed in the media ● Science in the news ● Radiation- nuclear power and its uses ● Spiritual - Conservation of energy. How (and why?) is there conservation of energy? What does this mean for nature? ● Social - Understanding of the importance of collaboration across countries and faiths to further understanding of different Physics topics. ● Ethical issues associated with nuclear power, should it be used? | | | | | |

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| | <ul style="list-style-type: none"> • Issues associated with the disposal of nuclear waste. • Uses of radiation and cancer treatment. • Stopping distances – consequences of poor driving and disregard for stopping distance. • Law around nuclear waste disposal, moral issues of waste disposal sites • Moral - Nuclear power as a weapon. Was Hiroshima worth the cost? What would have happened had they not dropped the bombs on Japan? | | | | | |
| Key Assessment Foci, suggested Assessments and Feedback week | See QMA calendar | See QMA calendar | See QMA calendar | See QMA calendar | See QMA calendar | See QMA calendar |
| Special Events | | Moon Watch 11th November | | 13-22 nd March National Science and Engineering Week | | Field course |
| Possible Visits | | | Science Live Trip | | | |
| CEIAG - Possible Employer Engagement Activities | <p>Careers communication / Oracy</p> <ul style="list-style-type: none"> • Research and presentation in Space topic (Autumn term 2) and Energy resources topic (summer term 2) • QWC science exam questions • Science skills sheets <p>Teamwork</p> <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>Negotiation and persuasions</p> <ul style="list-style-type: none"> • During practical activities and presentations <p>Problem solving – working individually and with others to find solutions to problems. E. g</p> <ul style="list-style-type: none"> • Practical skills • Data analysis, • Comparison/Evaluate exam questions <p>Leadership</p> <ul style="list-style-type: none"> • During practical activities and presentations <p>Organisation</p> <ul style="list-style-type: none"> • Practical skills – planning, equipment list, implementation, time management • Exam technique – time management • Presentations – time management <p>Perseverance and motivation</p> <ul style="list-style-type: none"> • Data analysis • Evaluate exam questions • Presentation <p>Ability to work under pressure</p> | | | | | |

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- Timed activities
 - QMAs
 - PPE

AQA Exam Board – Triple Students will be awarded 3 separate numerical GCSE Science grades one for each Science. 6 exams 1r 45 mins long, 28 assessed pieces of practical work.

AQA Exam Board – Trilogy Students will be awarded 2 numerical GCSE Science grades based on an average of the 3 sciences e.g. 3,4 or 4,5. 6 exams 1r 15 mins long, 21 assessed pieces of practical work.

Throughout the year students will revisit work done in year 9 to consolidate their understanding and reinforce learning