**Colton Hills Community School medium term planning**

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| **Topic title:**.. P7 Electromagnetism  | **Year:** … 11**Term:** …Autumn | **Why we teach this:**… To understand how we use the principles of energy, forces and electricity to live in the modern world. To see how science and technology have progressed over time and how modern machinery functions. | **Why we teach this here:**… This builds on our understanding of energy, electricity and forces to explain how the basis of many modern machines |
| **Big questions:**1. What is magnetism?
2. How can we see magnetism?
3. What are motors and how do they work?
4. How are motion, magnetism and current related?
5. What are generators and transformer and how do they work? Triple only
 | **Builds on previous topics:**…P1 Energy, P2 Electricity, P3 Particles, P4 Atoms, P5 Forces | **Links to future topics:**…P8 Space (Triple only) |
| **Key knowledge Triple*** Magnetism
* Magnetic field in wire
* Motors and magnets
* Motors, forces and fields
* Motor effect and sound
* Generators
* Forces, factors and uses of generators
* Transformers
* Transformer equation and National Grid
 | **Key knowledge continued:*** Magnetic forces, permanent and induced magnets
* Magnetic fields and materials
* Magnetic field of Earth and a wire
* Motors and magnets
* Direction of a motor and Fleming’s left hand rule HT ONLY
* Force and magnetic fields in a conductor HT ONLY
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| **Skills developed:**Researching information, make predictions using scientific knowledge and understanding, analyse observations and data using tables and graphs, select, plan and carry out the most appropriate types of scientific enquiries to test predictions, including identifying independent, dependent, and control variables where appropriate.Application of knowledge, making links, ethical debate, critical evaluation |
| **Mini/Interim assessments:*** Multiple choice questions
* Retrieval questions

**Termly summative assessment:*** End of topic test
 | **Independent study tasks/resources:*** Oak Triple <https://teachers.thenational.academy/units/magnetism-bf8d>
* Oak Combined F <https://teachers.thenational.academy/units/magnetism-ft-6f8c>
* Oak Combined H <https://teachers.thenational.academy/units/magnetism-ht-f466>
* Triple F <https://app.senecalearning.com/classroom/course/2670ac10-1d69-11e8-bf76-f14a3ef7c0e6/section/e6174ef0-1d70-11e8-8e43-0b8b5e91224a/session>
* Triple H <https://app.senecalearning.com/classroom/course/fe56ca00-05aa-11e8-9a61-01927559cfd5/section/0fe18250-05ca-11e8-a9c0-bbcf210a0d3d/session>
* Combined F <https://app.senecalearning.com/classroom/course/f4627c20-1e1d-11e8-b99c-3168302284a4/section/b5006990-1e20-11e8-820c-35b74d6c4779/session>
* Combined H <https://app.senecalearning.com/classroom/course/e7813ccb-376e-4375-9477-e8baddd262ba/section/6a8bc1a5-774b-4cab-92ea-7c47beb250dc/session>
 | **Key vocabulary 1:**AlternatorAttraction DynamoElectric motorElectromagnet Fleming’s Left-Hand ruleGenerator EffectInduced MagnetMagnetic CompassMagnetic field lines | **Key vocabulary 2:**Magnetic fieldMagnetic poles Microphones Motor effectPermanent MagnetRepulsion Solenoid Step down transformer Step up transformerTeslaTransformer  |
| **Cultural capital opportunities:** … Investigate the Earth’s magnetic field. Research how we use magnets in phones and motors in many modern machines, big and small! | **Whole school Curricular Concept links:**… technological progress. |

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| **Week/Phase** | **Key Features** |
| 1 | **Small Questions:** … |
| **Key Activities/Resources:**… | **Retrieval focus:**…**Independent study:**… |
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| 2 | **Small Questions:** … |
| **Key Activities/Resources:**… | **Retrieval focus:**…**Independent study:**… |
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| 3 | **Small Questions:** … |
| **Key Activities/Resources:**… | **Retrieval focus:**…**Independent study:**… |
| **Week/Phase** | **Key Features** |
| 4 | **Small Questions:** … |
| **Key Activities/Resources:**… | **Retrieval focus:**…**Independent study:**… |
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| 5 | **Small Questions:** … |
| **Key Activities/Resources:**… | **Retrieval focus:**…**Independent study:**… |
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| 6 | **Small Questions:** … |
| **Key Activities/Resources:** … | **Retrieval focus:**…**Independent study:**… |