

Prior Learning		Students have learned about electricity, basic circuit components, and forces including magnetic forces and their effects at KS3. At KS4 (P2 -Electricity) they have learned the role of generators and transformers in the generation and transmission of electricity.		
Lesson Number	AQA Spec	Title	Content	Assessment
1	4.7.1.1 4.7.1.2	Magnetism and magnetic forces	<ul style="list-style-type: none"> Explain what is meant by the poles of a magnet. Plot the magnetic field around a bar magnet. Describe magnetic materials and induced magnetism. 	
2	4.7.1.2 4.7.2.1	Compasses and magnetic fields	<ul style="list-style-type: none"> Describe the Earth's magnetic field. Describe the magnetic effect of a current. 	
3	4.7.2.1 4.7.2.2	The magnetic effect of a solenoid	<ul style="list-style-type: none"> Draw the magnetic field around a conducting wire and a solenoid. Describe the force on a wire in a magnetic field. 	Assessment 1: Multiple choice Quiz 25 Marks Feedback: Auto/Self-assessed
4	4.7.2.1	Electromagnets in action	<ul style="list-style-type: none"> Describe simple uses of electromagnets. Explain how an electric bell works. Interpret diagrams of other devices that use electromagnets to explain how they work. 	
5	4.7.2.2	Calculating the force on a conductor	<ul style="list-style-type: none"> Explain the meaning of magnetic flux density, B. Calculate the force on a current-carrying conductor in a magnetic field. 	

6 HIGHER TIER ONLY	4.7.2.3	Electric motors	<ul style="list-style-type: none"> List equipment that uses motors. Describe how motors work. Describe how to change the speed and direction of rotation of a motor. 	Assessment 2: Written assessment 15 Marks Feedback: Teacher
7 TRIPLE/HIGHER ONLY	4.7.2.4	Loudspeakers	<ul style="list-style-type: none"> Describe how a moving-coil loudspeaker works. Compare loudspeakers and headphones. 	
8 TRIPLE/HIGHER ONLY	4.7.3.1	The generator effect	<ul style="list-style-type: none"> Describe how a potential difference is induced across the end of a wire when it moves in a magnetic field. Identify the factors that affect the size and direction of the induced current or induced potential difference. 	
9	4.7	Key concept: The link between electricity and magnetism	<ul style="list-style-type: none"> Explore how electricity and magnetism are connected. Trilogy students do not need to know the content in the last section: Electromagnetic induction 	
10 TRIPLE ONLY HIGHER TIER ONLY	4.7.3.2 4.7.3.3	Using the generator effect	<ul style="list-style-type: none"> Explain how moving-coil microphones use the generator effect. Explain how a dynamo generates direct current and an alternator generates alternating current. For a dynamo and alternator, draw and interpret graphs of potential difference generated in the coil against time. 	

<p>11</p> <p>TRIPLE ONLY</p> <p>HIGHER TIER ONLY</p>	<p>4.7.3.4 (see also Lesson 2.11)</p>	<p>Transformers</p>	<ul style="list-style-type: none"> • Explain how a transformer both uses and produces alternating current. • Explain the relationship between the number of turns in the primary coil and the number in the secondary coil. • Calculate the current that needs to be provided to produce a particular power output. 	
<p>12</p>	<p>4.7.2.2 4.7.3.4</p>	<p>Math skills: Rearranging equations</p>	<ul style="list-style-type: none"> • Change the subject of an equation. • Trilogy students do not need to know the Transformer Equation 	
<p>End of Unit test Assessment: Teacher</p>				
<p>Where we will use these ideas again</p>		<p>In the summer GCSE exams: Paper 1 – P2 electricity Paper 2 – P7 electromagnetism</p>		