CP10: **Magnetism and the Motor Effect** (Paper 2)
CP11: **Electromagnetic Induction** (Paper 2)

Lesson	Objectives Tracker Sheet	Date covered	I know this well	I need to do more work on this
CP10a Magnets and magnetic fields	P12.1 Recall that unlike magnetic poles attract and like magnetic poles repel.			
	P12.2 Describe the uses of permanent and temporary magnetic materials including cobalt, steel, iron and nickel.			
	P12.3 Explain the difference between permanent and induced magnets.			
	P12.4 Describe the shape and direction of the magnetic field around bar magnets and for a uniform field, and relate the strength of the field to the concentration of lines.			
	P12.5 Describe the use of plotting compasses to show the shape and direction of the field of a magnet and the Earth's magnetic field.			
	P12.6 Explain how the behaviour of a magnetic compass is related to evidence that the core of the Earth must be magnetic.			
CP10b Electromagnetism	P12.7 Describe how to show that a current can create a magnetic effect and relate the shape and direction of the magnetic field around a long straight conductor to the direction of the current.			
	P12.8 Recall that the strength of the field depends on the size of the current and the distance from the long straight conductor.			
	P12.9 Explain how inside a solenoid (an example of an electromagnet) the fields from individual coils a add together to form a very strong almost uniform field along the centre of the solenoid b cancel to give a weaker field outside the solenoid.			
CP10c Magnetic forces	P12.10 **H** Recall that a current-carrying conductor placed near a magnet experiences a force and that an equal and opposite force acts on the magnet.			
	P12.11 **H** Explain that magnetic forces are due to interactions between magnetic fields.			

	P12.12 **H** Recall and use Fleming's left-hand rule to represent the relative directions of the force, the current and the magnetic field for cases where they are mutually perpendicular.			
	P12.13 **H** Use the equation: force on a conductor at right angles to a magnetic field carrying a current (newton, N) = magnetic flux density (tesla, T or newton per ampere metre, N/A m) × current (ampere, A) × length (metre, m) F = B × I × l			
	P12.14 **H** Explain how the force on a conductor in a magnetic field is used to cause rotation in electric motors.			
CP11a Transformers and energy	P13.10 Use the power equation (for transformers with 100% efficiency): potential difference across primary coil (volt, V) × current in primary coil (ampere, A) = potential difference across secondary coil (volt, V) × current in secondary coil (ampere, A) Vp × Ip = Vs × I			
	P13.11P **H** Explain the advantages of power transmission in high-voltage cables, using the equations in 10.29, 10.31, 13.7P and 13.10			
CP11b Transformers and energy	P13.10 Use the power equation (for transformers with 100% efficiency): potential difference across primary coil (volt, V) × current in primary coil (ampere, A) = potential difference across secondary coil (volt, V) × current in secondary coil (ampere, A) Vp × Ip = Vs × I			
	P13.11P H Explain the advantages of power transmission in high-voltage cables, using the equations in 10.29, 10.31, 13.7P and 13.10			