AQA Physics Paper 1	Covered in	Diagnosis			Revised		
P4.2. Electricity	Lesson	R	A	G	1	2	3
4.2.1 Current, potential difference and resistance — Draw and interpret circuit diagrams, including all common circuit symbols							
Define electric current as the rate of flow of electrical charge around a closed circuit							
Calculate charge and current by recalling and applying the formula: [Q = It]							
Explain that current is caused by a source of potential difference and it has the same value at any point in a single closed loop of a circuit							
Describe and apply the idea that the greater the resistance of a component, the smaller the current for a given potential difference (p.d.) across the component							
Calculate current, potential difference or resistance by recalling and applying the equation: [V = IR]							
Required practical 3: Use circuit diagrams to set up and check circuits to investigate the factors affecting the resistance of electrical circuits							
Define an ohmic conductor							
Explain the resistance of components such as lamps, diodes, thermistors and LDRs and sketch/interpret IV graphs of their characteristic electrical behaviour							
Explain how to measure the resistance of a component by drawing an appropriate circuit diagram using correct circuit symbols							
Required practical 4: use circuit diagrams to construct appropriate circuits to investigate the I–V characteristics of a variety of circuit elements							
4.2.2 Series and parallel circuits — Show by calculation and explanation that components in series have the same current passing through them							
Show by calculation and explanation that components connected in parallel have the same the potential difference across each of them							
Calculate the total resistance of two components in series as the sum of the resistance of each component using the equation: [R total = R1 + R2]							
Explain qualitatively why adding resistors in series increases the total resistance whilst adding resistors in parallel decreases the total resistance							
Solve problems for circuits which include resistors in series using the concept of equivalent resistance							

4.2.3 Domestic uses and safety	Explain the difference between direct and alternating voltage and current, stating what UK mains is									
	Identify and describe the function of each wire in a three-core cable connected to the mains									
	State that the potential difference between the live wire and earth (0 V) is about 230 V and that both neutral wires and our bodies are at, or close to, earth potential (0 V)									
	Explain that a live wire may be dangerous even when a switch in the mains circuit is open by explaining the danger of providing any connection between the live wire and earth									
4.2.4 Energy transfers	Explain how the power transfer in any circuit device is related to the potential difference across it and the current through it									
	Calculate power by recalling and applying the equations: [$P = VI$] and [$P = I^2R$]									
	Describe how appliances transfer energy to the kinetic energy of motors or the thermal energy of heating devices									
	Calculate and explain the amount of energy transferred by electrical work by recalling and applying the equations: [$E = Pt$] and [$E = QV$]									
	Explain how the power of a circuit device is related to the potential difference across it, the current through it and the energy transferred over a given time.									
	Describe, with examples, the relationship between the power ratings for domestic electrical appliances and the changes in stored energy when they are in use									
	Identify the National Grid as a system of cables and transformers linking power stations to consumers									
	Explain why the National Grid system is an efficient way to transfer energy, with reference to change in potential difference reducing current									
4.2.5 Static electricity	**PHY ONLY:** Describe the production of static electricity by the rubbing of insulating surfaces									
	PHY ONLY: Describe evidence that charged objects exert forces of attraction or repulsion on one another when not in contact									
	PHY ONLY: Explain how the transfer of electrons between objects can explain the phenomenon of static electricity, including how insulators are charged and sparks are created									
	PHY ONLY: Draw the electric field pattern for an isolated charged sphere									
	PHY ONLY: Explain the concept of an electric field and the decrease in its strength as the distance from it increases									
	PHY ONLY: Explain how the concept of an electric field helps to Explain the non-contact force between charged objects as well as other electrostatic phenomena such as sparking									