

In a series circuit, what happens to current?	Current is the same throughout
In a series circuit, what happens to voltage?	Voltage splits across the components
How should a voltmeter be connected?	In parallel to the component.
How should an ammeter be connected?	In series with the components.
In a parallel circuit, what happens to voltage?	Voltage is the same across each branch
In a parallel circuit, what happens to current?	Current splits across the branches
How do you find the total current in a parallel circuit?	Add up the current from each branch
What happens to the resistance of a bulb as voltage increases?	It increases
Which component only allows current to flow in one direction?	Diode
What is the relationship between current and voltage for a resistor?	Directly proportional
What happens to resistance when more resistors are added in series?	Increases
What happens to resistance when more resistors are added in parallel?	Decreases
What happens to the resistance of a thermistor when it gets hotter?	Decreases
What happens to the resistance of a LDR when the light is brighter?	Decreases
What is power?	The rate of energy transfer

What are the 4 non-renewable energy resources?	Coal, oil, natural gas (fossil fuels) and nuclear (uranium). i.e COGaN!!
What are the main features of a coal fired power station?	Furnace - Boiler - Steam - Turbines - Generator
How does a nuclear power station provide heat energy?	Uranium undergoes a nuclear fission releasing energy.
What is the main advantage of nuclear energy?	No CO <sub>2</sub> is produced in its generation
What is the main disadvantage of nuclear energy?	Radioactive waste is produced
Why are coal-fired power stations causes of global warming?	They increase levels of CO <sub>2</sub> in atmosphere causing global warming.
Why do coal-fired power stations cause acid rain?	They increase levels of sulphur dioxide in atmosphere causing acid rain.
What are the disadvantages of wind turbines?	Unsightly. Noisy. Not always windy.
What are the disadvantages of tidal barrages?	Affect river estuaries, destroying animal habitats.
What are the disadvantages of hydroelectric schemes?	Need large reservoirs of water which can destroy animal habitats.
What are disadvantages of solar cells?	Need large areas to generate large amounts of power.
What is the role of the National Grid?	To transfer electricity from power stations to the home/factories etc.
What does a step up transformer do?	Increase the voltage (and decrease the current)
Why is the voltage 'stepped up'?	To reduce energy loss due to resistance heating
What is the role of a step down transformer?	To decrease the voltage so it is safe to be transmitted to the home.

What causes heat to be transferred?	Temperature differences
What is conduction?	Transfer of heat by vibration of particles through solids.
What materials are the best conductors and why?	Metals, they have free electrons
What is convection?	Transfer of heat by hot, less dense gases or liquids rising
What is radiation?	Transfer of heat by infra red waves from hot regions to cold.
What surfaces are good absorbers and emitters of infra red radiation?	Dark, matt surfaces
What surfaces are poor absorbers and emitters of infra red radiation?	Light, shiny surfaces
How is a radiator designed so that it loses heat easily?	Large surface area.
How can energy loss through walls be reduced?	Cavity wall insulation
How can energy loss through ceilings be reduced?	Loft insulation
Why are double glazed windows good?	They save a lot of energy on your bills.
Why might you not buy double glazing?	Long payback time
Why is it important to reduce energy loss in the home?	Reduces CO <sub>2</sub> emissions (from generating electricity)
Which is the most dense state of matter?	Solid
Why are gases the least dense state of matter?	Particles are spread far apart.

What is the SI unit of power?	Watt
What does kWh stand for?	KiloWatt Hour
What is a kWh a measure of?	(Electrical) energy used.
What is direct current?	Current that flows in one direction around a circuit
What is the mains voltage in the UK?	230V
Name the three wires in a plug	Live, neutral and earth
What happens when a fuse blows?	It melts
What makes a fuse melt?	When current is too high
How does a miniature circuit breaker (mcb) work?	An electromagnet opens a switch if the current goes above a certain value.
Why is a mcb better than a fuse?	It can be reset
How does a residual current circuit breaker (rccb) work?	Detect a difference between the current in the live and neutral wires.
Why is a rccb better than a mcb?	More sensitive
Which appliances need to be earthed?	Ones with a metal frame
What does the live wire do?	Carries current to the house at high voltage
What does the neutral wire do?	Completes the circuit

What causes a transverse wave?	Vibrations perpendicular to the direction of travel
What causes longitudinal waves?	Vibrations parallel to the direction of travel
How do we measure the amplitude of a wave?	The distance from the middle to the top of a transverse wave
What does frequency mean?	The amount of waves travelling per second
How is wavelength measured?	The distance between two similar points on a wave
How do the angles of incidence and reflection compare to each other?	They are the same
What does a more dense substance do to the waves in refraction?	Slows the waves down
How are ultraviolet, x rays and gamma rays different from radio waves?	Shorter wavelength, higher frequency and energy
How are ultraviolet, x rays and gamma rays damaging?	They can ionise cells.
What do all Electromagnetic waves have in common?	They all travel at the same speed / transfer energy / transverse waves
What is the order of the EM Spectrum from low to high frequency?	Radio, Micro, Infra Red, Visible, Ultra Violet, X Rays, Gamma Rays
What is the order of the EM Spectrum from low to high wavelength?	Gamma Rays; X Rays; Ultra Violet; Visible; Infra Red; Micro; Radio
Which regions of the EM spectrum transfer energy?	All of them!
Which regions of the EM spectrum transmit information?	Visible; Infra Red; Micro; Radio
What is a geosynchronous orbit?	When a satellite returns to the same point at the same time each day.