Things to learn

Obviously, there are lots of things you need to know. The following is a list of things that just need to be memorised. Most of the rest needs to be understood. They are mostly laws and definitions as well as a few random numbers.

Use this as a checklist and cross them off when you are confident you know them.

Equations!!!

Unless you actually learn these, you cannot get a decent grade. So just learn them.

Orders of Magnitude and units

Mega – 106 etc. Again, these are going to come up time and time again. You must know them.

You should know the units of every quantity on the equations sheets. Acceleration and charge are the most frequently asked, but you should know them all.

# Energy

Definition of specific heat capacity

Definition of a watt

Definition of renewable

# Electricity

Circuit symbols

Current in series circuit is same throughout the circuit

Shape of IV graphs – must also be able to explain why they are that shape

Voltage across each branch of parallel circuit is the same

Ohm’s Law

Total resistance of two resistors in parallel is less that the resistance of the smallest individual resistance

Frequency and voltage of UK mains supply

The National Grid is a system of cables and transformers linking power stations to consumers

Like charges repel, opposite charges attract

# Particles

Definition of internal energy

Definition of latent heat and which one is fusion and vaporisation

Explanation of why there is pressure in a gas (particles colliding with walls etc)

# Atoms

Radius of an atom

Mass number and atomic number and what they mean

Development of models of the atom

Gold foil experiment

What alpha, beta and gamma particles are

Definition of half life

# Forces

Definition of a Joule

Hooke’s law

Typical speeds for walking, running and cycling

A typical value for the speed of sound

Quote Newton’s three laws

Typical value for a human reaction time

Law of conservation of momentum

# Waves

Definition of longitudinal and transverse waves – they are constantly asking this. Get it right, close is not good enough.

Range of human hearing

Electromagnetic spectrum in order

Learn these two statements. Don’t worry if you don’t understand them. Understanding them is way beyond the knowledge required on the specification. Why are they on the specification I hear you ask? No idea!

*Radio waves can be produced by oscillations in electrical circuits*

*When radio waves are absorbed they may create an alternating current with the same frequency as the radio wave itself, so radio waves can themselves induce oscillations in an electrical circuit.*

# Magnets

Magnetic materials