

AQA A Level Physics

--P1 Measurements and their Errors

-P1.1 Use of SI units and their prefixes

No Knowledge

Insecure

Secure



Know the fundamental base and standard index units

Be able to derive standard index units

Be able to use standard index prefixes and standard form

Be able to convert between different units of the same quantity, i.e. J and eV, J and KWh

-P1.2 Limitation of physics measurements

Be aware of the difference between random and systematic errors and be able to give examples

Know the definitions for precision, repeatability, reproducibility, resolution and accuracy

Know the difference between absolute, fractional and percentage uncertainties

Be able to combine absolute and percentage uncertainties

Be able to represent uncertainty in a data point on a graph using error bars

Be able to determine uncertainties in the gradient and intercept of a straight-line graph

AQA A Level Physics

--P2 Particles and Radiation

-P2.1 Constituents of the atom

No Knowledge

Insecure

Secure



Know the simple model of the atom, including proton, neutron and electron

Know the charge and mass of the proton, neutron and electron in SI units and relative units

Know the specific charge of the proton and the electron and of nuclei and ions

Know the nuclide notation of Proton Number Z , and Nucleon Number A

Know the meaning of isotopes and the use of isotopic data

-P2.2 Stable and unstable nuclei

Know the role of the strong nuclear force including distances of short range attraction and very-short range repulsion

Know the equations for Alpha and Beta minus decay including the need for the neutrino

Describe why the neutrino was hypothesised to account for the conservation of energy in beta decay

-P2.3 Particles, anti-particles and photons

Show awareness that for every type of particle there is a corresponding anti-particle

Be able to compare particle and anti-particle masses, charge and rest energy in MeV

[illegible]

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--P3 Waves

-P3.1 Progressive waves

No Knowledge

Insecure

Secure



Define amplitude, frequency, wavelength, speed, phase, phase difference

Know and use $c=f\lambda$, $f=1/t$

Appreciate phase difference can be measured as an angle (radians and degrees) or as fractions of a cycle

-P3.2 Longitudinal and transverse waves

Appreciate the nature of longitudinal and transverse waves

Know the direction of displacement of particles/fields relative to the direction of energy propagation and that all electromagnetic waves travel at the same speed in a vacuum

Describe how polarisation is evidence for the nature of transverse waves

Describe some applications of polarisation to include polaroid material and the alignment of aerials for transmission and reception

-P3.3 Principle of superposition of waves and formation of stationary waves

Define a stationary wave

Identify nodes and antinodes on strings

Know and use $f = 1/2lv(t/\mu)$

[illegible]

AQA A Level Physics
--P4 Mechanics and Materials
-P4.1 Scalars and vectors

No Knowledge
Insecure
Secure



State the difference between scalars and vectors											
Add vectors by calculation or scale drawing											
Be able to resolve vectors into two components at right angles to one another											
Appreciate the meaning of equilibrium in the context of an object at rest or moving with constant velocity											
-P4.2 Moments											
Calculate the moment of a force about a point											
Define a moment as the force x perpendicular distance from the point to the line of action of the force											
Define a couple as a pair of equal and opposite coplanar forces											
Define a moment of couple as the force x perpendicular distance between the lines of action of the force											
Define centre of mass											
Know that the position of centre of mass of an uniform regular solid is at its centre											
-P4.3 Motion along a straight line											

[illegible]

[illegible]

Personalised Learning Checklist

Date Reviewed and RAG Rating

AQA A Level Physics

--P5 Electricity

-P5.1 Basics of Electricity

No Knowledge

Insecure

Secure



Know that electric current is the rate of flow of charge, potential difference is the work done per unit charge

Know and use $I = \Delta Q / \Delta t$, $V = w / q$

Define resistance as $R = V / I$

-P5.2 Current-voltage characteristics

Recognise the current voltage characteristics for: ohmic conductors, semiconductor diodes and a filament lamp

Recognise Ohm's law as a special case where I is proportional to V under constant physical conditions

-P5.3 Resistivity

Know and use $\rho = RA / L$

Describe qualitatively the effect of temperature on the resistance of metal conductors and thermistors (NTC)

Describe resistance-temperature graphs for NTCs

State applications of NTCs

Describe superconductivity and the conditions required for it to occur

[illegible]