



Learning Journey Map

Year 12 – Physics



OCR
Oxford Cambridge and RSA

Further study



Year 13 Survival Top Tips	
Tip 1	Learn and revise vocabulary weekly, use glossaries given and - Quizlet/Seneca/Educake
Tip 2	Use Youtube & Isaac physics to help review key skills and concepts
Tip 3	Use PMT/ Bitesize/Kerboodle resources/past OCR questions
Tip 4	Use the Pixl Resources on Firefly & therapy questions
Tip 5	Read online science news, watch science documentaries

P27: Medical Imaging

- X-rays & their interaction
- CAT scans
- The gamma camera
- PET scans
- Ultrasound
- Acoustic impedance
- Doppler imaging

P24: Particle physics

- Alpha scattering experiment
- The nucleus
- Antiparticles, hadrons & leptons
- Quarks
- Beta decay



$$\beta \text{ (beta particle)} = e_{-1}^0$$

P25: Radioactivity

- Radioactivity
- Nuclear decay equations
- Half-life & activity
- PAG: Absorption and random nature of radiation
- Radioactive decay calculations
- Modelling radioactive decay
- Radioactive dating



P26: Nuclear physics

- Einstein's mass-energy equation
- Binding energy
- Nuclear fission
- Nuclear fusion

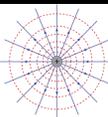
$$E=mc^2$$

P23: Magnetic fields

- Magnetic fields
- Charged particles in B field
- Electromagnetic induction
- Faraday & Lenz's law
- Transformers

P22: Electric Fields

- Electric fields
- Coulomb's law
- Uniform E fields & capacitance
- Charged particles in E field
- Electric potential energy

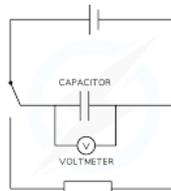


Module 6: Particles & Medical physics

P21: Capacitance

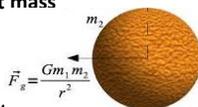
$$C = \frac{Q}{V}$$

- Capacitors and circuits
- Energy stored by capacitors
- Discharging capacitors
- Charging capacitors
- Uses of capacitors



P18: Gravitational Fields

- Gravitational fields
- Newton's Laws of gravity
- GFS for a point mass
- Kepler's Laws
- Satellites
- Gravitational potential & Energy



P19: Stars

- Objects in the Universe
- Life cycle of Stars
- Hertzsprung-Russel diagram
- Energy levels in atoms
- Spectra
- Analysing starlight
- Stellar luminosity



P20: Cosmology

- Astronomical distances
- The Doppler effect
- Hubble's law
- The Big Bang theory
- Evolution of the Universe

P4: Electrons Photons and Waves

- Charge and current
- Energy, power and resistance
- Electrical circuits
- Waves
- Quantum physics

P3: Forces and Motion

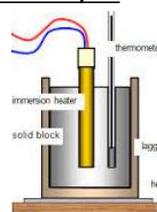
- Motion 3.2 Forces in action
- Work, energy and power
- Materials
- Newton's laws of motion and momentum

P2: Foundations in Physics

- Module 2 – Foundations of Physics
- Physical quantities and units
- Making measurements and analysing data 2.3
- Nature of quantities

Review of GCSE

P1: Practical Skills in Physics



CURRICULUM OVERVIEW

Development of key scientific skills: planning valid experiments, carrying out practicals safely, displaying & processing data, as well as analysing & evaluating results

Possible careers

Research scientist, materials scientist, seismologist, mechanical engineer, architect, radiation oncology, theme park ride designer, audiologist, optician, space technology, Electrical engineer, civil engineer and many more!!

CURRICULUM OVERVIEW