

**A-Level Physics Overview: Year 1**

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| Term | Mr Abbott/Mr CooperModules 1,2 and 3 | Mr Seal/Mr WattsModules 1,2 and 4 | Key Skills / Coursework / PSAs / Deadlines |
| 1 | **Module 2****Chapter 2 Basic Maths skills (1st Week only)**2.1 Quantities and units2.2 Derived units. Maths skills assessment. **Module 3****Chapter 3 Motion** 3.1 Distance and speed3.2 Displacement and velocity3.3 Acceleration3.4 Velocity–time graphs3.5 Equations of motion3.6 Car stopping distances3.7 Free fall and g3.8 Projectile motionChapter 3 Motion Assessment | **Module 4****Chapter 11 Waves 1**11.1 Progressive waves11.2 Wave properties11.3 Reflection and refraction11.4 Diffraction and polarisation11.5 Intensity11.6 Electromagnetic waves11.7 Polarisation of electromagnetic waves11.8 Refractive index11.9 Total internal reflectionChapter 11 Waves assessment | **Basic maths skills test.** PAG 1.2 Investigating Terminal VelocityPAG 5.3 Determining the frequency and wavelength of a wave using an oscilloscope |
| 2 | **Chapter 4 Forces in action:**4.1 Force, mass, and weight4.2 Centre of mass4.3 Free-body diagrams4.4 Terminal velocity4.5 Moments4.6 Couples and torques4.7 Triangles of forces4.8 Density and pressure4.9 Pressure in fluids and Archimedes' principleChapter 4 Forces in Action Assessment | **Chapter 12 Waves 2**12.1 Superposition of waves12.2 Interference12.3 The Young double-slit experiment12.4 Stationary waves12.5 Harmonics12.6 Stationary waves in air columnsChapter 12 Assessment | PAG 5.1 Determining the wavelength of light with a diffraction grating |
| 3 | **Chapter 5 Work, energy and power**5.1 Work done and energy5.2 Conservation of energy5.3 Kinetic energy and gravitational potential energy5.4 Power and efficiencyChapter 5 Work, Energy and Power Assessment **Chapter 6 Materials** 6.1 Springs and Hooke's law6.2 Elastic potential energy6.3 Deforming materials6.4 Stress, strain, and the Young modulusChapter 6 Materials Assessment | **Chapter 13 Quantum Physics**13.1 The photon model13.2 The photoelectric effect13.3 Einstein's photoelectric effect equation13.4 Wave-particle dualityChapter 13 Quantum Physics Assessment **Chapter 8 Charge and current**8.1 Current and charge8.2 Moving charges8.3 Kirchhoff's first law8.4 Mean drift velocityChapter 8 Charge and Current Assessment  | PAG 6.1 Determining the Planck ConstantPAG 2.1 Determining the Young’s Modulus of a Metal |
| 4 | **Chapter 7 Laws of motion and Momentum** 7.1 Newton's first and third laws of motion7.2 Linear momentum7.3 Newton's second law of motion7.4 Impulse7.5 Collisions in two dimensionsChapter 7 Laws of Motion and Momentum Assessment | **Chapter 9 Energy, power and resistance**9.1 Circuit symbols9.2 Potential difference and electromotive force9.3 The electron gun9.4 Resistance9.5 I-V characteristics9.6 Diodes9.7 Resistance and resistivity9.8 The thermistor9.9 The LDR9.10 Electrical energy and power9.11 Paying for electricityChapter 9 Energy, Power and Resistance Assessment | PAG 3.2 Investigating the Electrical Characteristics of Non-Ohmic ComponentsPAG 4.1 Investigating ResistancePAG 3.1 Determining the resistivity of a metal |
| 5 | **Module 5 (year 2 precursor)****Chapter 16 Circular motion**16.1 Angular velocity and the radian16.2 Angular acceleration16.3 Exploring centripetal forces | **Chapter 10 Electrical circuits** 10.1 Kirchhoff's laws and circuits10.2 Combining resistors10.3 Analysing circuits10.4 Internal resistance10.5 Potential divider circuits10.6 Sensing circuitsChapter 10 Electrical Circuits Assessment |  |
| 6 | **Revision of module 3 in preparation for end of year 1 assessments.** Motors investigation**Chapter 20**20.1 Astronomical distances20.2 The Doppler effect20.3 Hubble's law | **Revision of module 4 in preparation for end of year 1 assessments**. Motors investigation**Chapter 20**20.4 The Big Bang theory20.5 Evolution of the Universe | **End of year 1 assessments**PAG 13.1 Investigating the effect of load on the efficiency of a motor |



**A-Level Physics Overview: Year 2**

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| Term | Teacher 1Modules 1,2 and 5 | Teacher 2Modules 1,2 and 6 | Key Skills / Coursework / PSAs / Deadlines |
| 1 | **Module 5****Chapter 14 Thermal Physics**14.1 Temperature14.2 Solids, liquids and gases14.3 Internal energy14.4 Specific heat capacity14.5 Specific latent heat**Chapter 15 Ideal Gasses**15.1 The kinetic theory15.2 Gas laws15.3 Root mean square speed15.4 The Boltzmann constantChapter 14/15 Assessment | **Module 6****Chapter 21 Capacitance**21.1 Capacitors21.2 Capacitors in circuits21.3 Energy stored by capacitors21.4 Discharging capacitors21.5 Charging capacitors21.6 Uses of capacitors**Chapter 22 Electric fields**22.1 Electric fields22.2 Coulomb's law22.3 Uniform electric fields and capacitance22.4 Charged particles in uniform electric fields22.5 Electric potential and energyChapter 21/22 assessment | PAG 8.1 Estimating absolute zero from gas pressure and volumePAG 9.1 Investigating the charging and discharging of capacitorsPAG 9.2 Investigating capacitors in series and parallel |
| 2 | **Chapter 16 recap****Chapter 17 Oscillations**17.1 Oscillations and simple harmonic motion17.2 Analysing simple harmonic motion17.3 Simple harmonic motion and energy17.4 Damping and driving17.5 ResonanceChapter 16/17 assessment | **Chapter 23 Magnetic fields**23.1 Magnetic fields23.2 Understanding magnetic fields23.3 Charged particles in magnetic fields23.4 Electromagnetic induction23.5 Faraday's law and Lenz's law23.6 TransformersChapter 23 assessment | PAG 10.1 Factors affecting simple harmonic motionPAG 11.1 Investigating transformers |
| 3 | **Chapter 18 Grav fields**18.1 Gravitational fields18.2 Newton's law of gravitation18.3 Gravitational field strength for a point mass18.4 Kepler's laws18.5 Satellites18.6 Gravitational potential18.7 Potential energyChapter 18 assessment**Chapter 19 Stars**19.1 Objects in the universe19.2 The life cycle of stars19.3 The Hertzsprung-Russell diagram19.4 Energy levels in atoms19.5 Spectra19.6 Analysing starlight19.7 Stellar luminosityChapter 19 assessment | **Chapter 25 Radioactivity**25.1 Radioactivity25.2 Nuclear decay equations25.3 Half-life and activity25.4 Radioactive decay calculations25.5 Modelling radioactive decay25.6 Radioactive dating**Chapter 26 Nuclear Physics**26.1 Einstein's mass-energy equations26.2 Binding energy26.3 Nuclear fission26.4 Nuclear fusionChapter 25/26 assessment | PAG 7.2 Investigating the absorption of alpha, beta and gamma rays by appropriate materials.  |
| 4 | **Chapter 24 Particle Physics**24.1 Alpha-particle scattering experiment24.2 The nucleus24.3 Antiparticles, hadrons, and leptons24.4 Quarks24.5 Beta decay**Modelling Physics Mock** | **Chapter 27 Medical imaging**27.1 X-rays27.2 Interaction of X-rays with matter27.3 CAT scans27.4 The gamma camera27.5 PET scans27.6 Ultrasound27.7 Acoustic impedance27.8 Doppler imaging**Exploring Physics Mock** |  |
| 5 | **Unified Physics Mock****Revision** | **Unified Physics Mock****Revision** |  |