**OCR A Physics A Level - Overview 2022-23**

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| **Year Group** | **Autumn Term** | | | **Spring Term** | | | **Summer Term** | |
|  | **Term 1** | **Term 2** | | **Term 3** | **Term 4** | | **Term 5** | **Term 6** |
| **Year 12**  *The first year of the course will cover the core content which underpins the A Level (modules 2, 3 and 4).*  *Module 1 (practical component) also runs throughout both years of the course and is a pass or fail aspect (not graded). Elements of this module come up in the written exams too, similar to the RP’s in GCSE.* | **Module 1 – Practical Skills**   * Planning an experiment * Recording and processing data * Analysing results * Evaluating and drawing conclusions * Practice PAG   **Module 2 – Foundations in Physics**   * Quantities & Units * Estimates * Errors & Uncertainties * Graphical Analysis * Graphing uncertainties * Trigonometry * Scalars & Vectors * Resolving vectors | **Module 4 – Electricity**   * Circuit diagrams * Current & charge * Drift velocity * EMF * Resistivity * Conductors * IV characteristics * Power * Domestic electricity * Series & parallel * Potential dividers * Internal resistance * Circuit analysis   **Module 3 – Energy**   * Energy & power * KE & GPE * Conservation of Energy * Efficiency   Revision + mock exams | | **Module 4 – Waves**   * Frequency & Intensity * Electromagnetic waves * Polarisation * Refraction * Total internal reflection * Superposition * Diffraction * Two source interference * Young’s experiments * Diffraction gratings   **Module 3 – Materials**   * Hooke’s Law * Deformation * Stress & Strain * Young’s Modulus * Stress-strain graphs | **Module 3 – Motion**   * Acceleration * Acceleration due to gravity * Projectile motion * D-t and V-t graphs * Stopping distances   **Module 3 – Forces**   * Net forces * Equilibrium * Moments & torques * Density & pressure * Drag & terminal velocity   **Module 3 – Newton’s Laws**   * Momentum   Impulse | | **Module 4 – Quantum**   * Photons * Planck’s constant * Photoelectric effect * Wave-particle duality   Revision + mock exams | (Start Y13 content)  **Module 6 – Nuclear Physics**   * Atomic structure * The standard model * The nucleus * Matter & anti-matter * Radioactivity * Decay equations |
| **Year 13**  *Students will now use their Year 1 knowledge to access Year 2 content.*  *Module 5 Module 6 content will alternate so that in-year exams can contain elements from both modules.*  *Module 1 (practical component) continues.* | **Module 5 – Thermal Physics**   * Temperature * phases of matter * internal energy & Brownian motion * Specific Heat Capacity * Specific Latent Heat * Kinetic Theory * Gas Laws * Ideal Gas Equation * Boltzmann constant   **Module 6 – Capacitors**   * Series & Parallel * Energy stored * Charging & discharging * Time constants | | **Module 5 – Orbital Motion**   * Circular motion * Centripetal acceleration * Centripetal force * Simple harmonic motion * Damping * Resonance   Revision + mock exams  **Module 5 – Gravitational Fields**   * Newton * Kepler * GPE   **Module 6 – Electric Fields**   * Coulomb * Uniform fields * EPE | **Module 6 – Magnetic Fields**   * Flux density * Forces on charged particles * Motion of charged particles * Induction * Flux linkage * Faraday & Lenz * Generators & transformers   **Module 6 – Medical Physics**   * X-rays * CAT scans * Gamma cameras * PET scans * Ultrasound * Flux density   **Module 6 – Nuclear physics continued**   * Nuclear forces & density * Exponential decay * Radioactive dating * Binding energy * Fission * Fusion | Revision + mock exams  **Module 6 – Astrophysics**   * The solar system * Astronomical distances * Star formation * Radiation & luminosity * Wein’s Law & Stefan’s constant * Analysing starlight * Red shift & CMBR * Hubble & the Big Bang * Dark matter & dark energy | Catch-up, Revision + Exams | |  |