

*A-level Physics Year 13 Curriculum Overview 2024-2025*

**Autumn term: 2024**

**Section 8: Gravitational & electric fields**

• 8.1 Gravitational field

• 8.2 Gravitational field Strength

• 8.3 Gravitational Potential

• 8.4 Orbits

• 8.5 Electric Fields

• 8.6 Electric Potential

• 8.7 Comparing Electric and Gravitational Fields

• Review & EOU test

**Section 9: Electromagnetism**

• 9.1 Magnetic flux density

• 9.2 Forces on charge particles

• 9.3 Electromagnetic induction

• 9.4 Faraday’s and Len’s law

• RP10 Investigating Force on a Current-carrying Wire

• RP11 Investigating Flux Linkage with a Search Coil

• 9.5 AC

• 9.6 Transformers

• Review & EOU test

**Section 10: Capacitors**

• 10.1 Capacitors

• 10.2 Energy stored by capacitors

• 10.3 Charging and Discharging

**Section 7: Further mechanics**

• Recap of Further Mechanics

• FD and gap analysis

• [RP7: Investigation of Mass Spring System](file:///F:\A\Plan_SOW\links\RP7.docx) &

Simple Pendulum System

**Section 13: Astrophysics**

• 13.1 Optics and optical telescope Recap

• 13.2 Comparing telescopes

• 13.3 Parallax and parsecs

• 13.4 Magnitude

• 13.5 Stars as black bodies

• 13.6 Stellar classification

• 13.7 Evolution of stars

• 13.8 Doppler shift and redshift

• 13.9 The Big bang theory

• 13.10 Detection of binary stars, quasars and exoplanets

• Summary & review

• EOU test / Mock exam 1

*Christmas break*

*Half Term*

**Spring term: 2025**

**Winter term: 2025**

**Section 11:** *continued*

* 11.11 Nuclear Physics Summary
* RP12 Investigating the inverse square law
* EOU test

**Section 12**

* 12.1 Thermal energy transfer
* 12.2 The three gas laws
* 12.3 The ideal gas equation
* 12.4 Kinetic theory and the pressure of an ideal gas
* 12.5 Kinetic energy of gas molecule
* RP8: Experimental Investigation of Boyle’s Law, and Investigation of Charles Law
* EOU test

**Section 10:** *continued*

• 10.4 Time constant, time half and dielectric

• RP9 Investigating Capacitors Discharging

• Summary & review

• EOU test

**Section 11**

• 11.1 The Atomic Nucleus

• 11.2 Nuclear Radius and Density

• 11.3 Properties of Nuclear Radiation

• 11.4 Background radiation and intensity

• 11.5 Exponential Law of Decay

• 11.6 Half-life and its Applications

• 11.7Nuclear Decay

• 11.8 Mass defect and the binding energy

• 11.9 Nuclear Fission and fusion

• 11. 10 Nuclear Fission Reactor

*Easter break*

*Half Term*

***Preparation for external exam***