

 *GCSE Physics Year 10 Curriculum Overview 2024-2025*

Teaching science at Key Stage 4 builds upon and extends the scientific knowledge and understanding developed in earlier stages, particularly Key Stage 3 contents such as Energy, Matter, Forces and Motion, Waves, Electricity and Magnetism, and Space. At Key Stage 4, these topics are explored in greater depth, offering students opportunities to deepen their theoretical understanding and enhance their experimental skills through Required Practicals. Additionally, students strengthen their analytical and evaluative skills through hands-on experimentation.

**Autumn term: 2024**

1. **Energy**

 **(a) Types of Energy, energy transfers (changes)**

 **& efficiency of transfer**

• Introduction to GCSE Physics –

 (Introduction to the physics curriculum)

• 1.1 Changes in energy store

• 1.2 Conservation of energy

• 1.3 Energy and work

• 1.4 Gravitational potential energy stores

• 1.5 Kinetic energy and elastic stores

• 1.6 Energy dissipation

• 1.7 Energy and efficiency

• 1.8 Electrical appliances

• 1.9 Energy and power

• Summary and review

 **Assessment**: Testing knowledge of (a)

(b) How energy moves from place to place and

 transfer of thermal energy

• 2.1 Energy transfer by conduction

• 2.2 Infrared radiation

• 2.3 Specific heat capacity & Measurement of

 specific heat capacity

* RP1: Determining the specific heat capacity

• 2.4 Heating and insulating buildings

* RP1: Determining the specific heat capacity
* RP2: Investigating thermal insulators

• Summary and review

(c) Energy Resources/Sources & the Environment

• 3.1 Energy demands

• 3.2 Energy from wind and water

• 3.3 Power from sun and earth (geothermal)

• 3.4 Energy and the environment

 **Assessment**: Testing knowledge of 1 (a); (b); (c) & (d)

*Christmas break*

*Half Term*

**Winter term: 2025**

1. **Particle model of matter**

Phases of matter & how energy is stored/

 released as matter changes phase

• 6.1 Density

• 6.2/3 States of matter and changes of states

• 6.4/5 Internal energy and specific latent heat

• 6.6/7 Gas Pressure, temperature and volume

• RP5: Calculating densities

• Summary and review

* **Assessment**: Testing knowledge of 3
1. **Atomic structure**

 Atomic structure, nucleus, stability of nucleus

 & nuclear energy

• 7.1 Atoms and radiation

• 7.2 Discovery of the nucleus

• 7.3 Changes in the nucleus I

• 7.4 Changes in the nucleus II

**Spring term: 2025**

1. **Electricity**
2. **Concept of Electric charge, their fields and**

**electrical circuits**

• 4.1 Electrical charges and fields

• 4.2 Current and charge

• 4.3 Potential difference and resistance

• 4.4 Component characteristics

• 4.5 Series Circuits

• 4.6 Parallel Circuits

* RP3: Investigating resistance
* RP4: Investigating electrical components

• Summary and review

*Half Term*

(b) Electricity in the home

• 5.1 Alternating current

• 5.2 Cables and plugs

• 5.3 Electrical power and potential difference

• 5.4 Electrical currents and energy transfer

• 5.5 Appliances and efficiency

• Summary and review

 **Assessment**: Testing knowledge of 2 (a) & (b)

* 7.5 Activity and half-life

• 7.6 Nuclear radiation in medicine

• 7.7 Nuclear fusion

• 7.8 Nuclear fusion

• Summary and review

*Half Term*

*End of the Year Exams in June (of 1 to 4)*

*Easter break*