Physics - Year 8

AUTUMN 1

Magnets: Poles and their interactions
Magnets: Fields
Electromagnets: Building and testing
Electromagnets: Uses of electromagnets in industry and the home

History of development of the atom
History of development of the Periodic table

PRIOR LEARNING

Forces: KS2

AUTUMN 2

Waves: What is a wave?
Waves: Properties of Transverse and Longutudinal Waves
Waves: The electromagnetic spectrum
Waves: Uses of the electromagnetic spectrum

Wave interactions: Reflection
Wave interactions: Refraction
Uses of Waves: Ultra sound and echolocation
Wave Calculations: The wave equation

Light KS2

SPRING 1

Forces: The effects of resultant forces
Forces: Friction
Forces: Lubrication

Forces: Drag and air resistance
Forces: Hooke's Law and deformation

PRIOR LEARNING

Forces KS2

SPRING 2

Forces: Pressure
Forces: Pressure calculations
Forces: Pressure in liquids

Forces: Floating and sinking
Forces: Pressure in a gas

Forces KS2 and KS3

SUMMER 1

Energy: Stores
Energy: Conservation of energy
Energy: Work done through forces

Energy: Inclined planes
Energy: Levers
Energy: Applications of the principle of moments

PRIOR LEARNING

Energy KS3

SUMMER 2

Thermal Energy: Conduction
Thermal Energy: Convection

Thermal Energy: Radiation
Thermal Energy: Heat vs Temperature

Energy KS3

Summative Assessment 1

Key Knowledge and skills from a broad range of content from HT1,2, and 3

Mixture of multiple choice, short answer and extended answer questions.

Summative Assessment 2

Key Knowledge and skills from a broad range of content from HT1,2,3,4 and 5

Mixture of multiple choice, short answer and extended answer questions.

Physics - Year 9

AUTUMN 1

Particle Model: Solids, liquids and gases
Particle Model: Linking the particle model to properties of S,L and G
Partice Model: Archimedes principle

Particle Model: Calculating Density
Particle Model: Determining density experimentally

PRIOR LEARNING

Particles KS3 Chemistry

AUTUMN 2

Particle Model: Changes of state
Particle Model: Internal energy
Particle Model: Calculating Specific Heat Capacity

Particle Model: Calculating Latent Heats of fusion and vaporisation
Particle Model: Cooling Curves

Particles KS3 Chemistry / Thermal energy KS3 Physics

SPRING 1

Particle Model: Pressure and gas motion
Particle Model: Gas law
Particle Model: Consolidated learning

PRIOR LEARNING

Forces KS2

SPRING 2

Atomic Structure: Development of the model of the atom
Atomic Structure: Nuclear nomenclature

Atomic structure: Isotopes
Atomic Structure: Decay

Atoms: KS3 Chemistry

SUMMER 1

Atomic Structure: Alpha, Beta and Gamma Decay
Atomic Structure: Decay equations
Atomic Structure: Half life and the random nature of decay

PRIOR LEARNING

HT 4: Decay

SUMMER 2

Atomic Structure: Uses of radiation
Atomic Structure: Fission and Fusion

HT4/5: Radiation

Summative Assessment 1

Key Knowledge and skills from a broad range of content from HT1,2, and 3 plus key Physics principles from Year 7 and 8

Mixture of multiple choice, short answer and extended answer questions.

Summative Assessment 2

Key Knowledge and skills from a broad range of content from HT1,2,3,4 and 5 GCSE Style Questions

Physics - Year 10

AUTUMN I

Energy: Stores
Energy: Conservation of Energy

Energy: Calculations of Kinetic, Gravitational Potential and Elastic
Energy: Specific Heat Capacity Required Practical

PRIOR LEARNING

KS3 Energy Stores

AUTUMN 2

Energy: Power
Energy: Efficiency
Energy: Thermal insulation

Energy: Thermal insulation required practical
Energy: National and Global sources

KS3 Energy Stores and KS4 Energy Calculations

Summative Assessment 1

Key Knowledge and skills from a broad range of content from HT1,2, and 3 plus key Physics principles from 9 (Atomic structure and Particle Model). GCSE Style Questions

SPRING I

Elecricity: Static electricity and fields
Elecricity: Simple Ciruicts
Elecricity: Potential Difference

Elecricity: Current and resistance
Elecricity: Ohms law and Required Practicals

PRIOR LEARNING

KS3: Circuits

SPRING 2

Elecricity: IV Characteristics and Required Practical
Elecricity: Length vs Resistance
Elecricity: Thermistors and LDRs

Elecricity: ACDC
Elecricity: Electrical power
Elecricity: National Grid

HT3 Circuits

Summative Assessment 2

Y10 PPE (GCSE exam style paper based on AQA Physics paper 1 content)

SUMMER I

Forces: The effects of resultant forces
Forces: Vectors and Scalars
Forces: Work done

Forces: Elasticity inc Required Practical
Forces: Speed, velocity and motion graphs

PRIOR LEARNING

KS3 Speed Calculations and Force diagrams

SUMMER 2

Forces: Newton's Laws
Forces: F=ma and required practical
Forces: Braking

Forces: Momentum
Forces: Pressure
Moments

Year 8: Forces and moments

Subject - Year 11

AUTUMN I

Waves: Longitudinal and Transverse
Waves: Calculations
Wave interactions: Reflection

Wave interactions: Refraction inc required practical
Waves: The ripple tank
Waves: The EM Spectrum

Waves: Black bodies and emission/absorption
Waves: Probing the universe
Waves: Lenses

AUTUMN 2

Magnetism: Fields and interactions
Magnetism: Building electromagnets
Magnetism: Fleming's left and rule and the right hand grip rules

Magnetism: Induction
Magnetism: The motor effect

SPRING I

Space: The Solar system
Space: Stellar life cycles
Space: Cosmology

SPRING 2

Consolidation of learning Year 9 - Year 11

SUMMER I

GCSE examination

SUMMER 2

PRIOR LEARNING

KS3 Waves

KS3 Magnets

PRIOR LEARNING

PRIOR LEARNING

PRIOR LEARNING

Summative Assessment 1

Key Knowledge and skills from a broad range of content from Year 9 and 10 and HT 1-2 Year 11. GCSE Style Questions

Y11 PPE 1 (GCSE exam style paper based on AQA Physics paper 1 content)

Summative Assessment 2

Y11 PPE 2 (GCSE exam style paper based on AQA Physics paper 2 content)

Physics - Year 12

AUTUMN 1

Measurement and devicess
Calculating Uncertainty
Practical Skills and required practical competencies

The Atmosphere
Radioactive decay
Energy in the atom
Particle Interactions

Progressive and stationary waves
Polarisation
Superposition
Required Practical 1

AUTUMN 2

Classifciation of Particles
Quarks and Anti Quarks
Conservation Laws
Photoelectric effect

Emission
Wave Particle Duality
Interference
Young's Slits

Required Practical 2
Diffraction
Refraction

SPRING 1

Scalars and Vectors
Equilibrium
Moments
Motion in a straght line

Acceleration of free fall / Req Prac 3
Basics of electricity
IV Characteristics

Emf and internal resistance
Resisitivity
Required Practical 5

SPRING 2

Projectile motion
Terminal Speed
Newton's Laws

Momentum
Work, energy and power
Resistors in series and parallel

Power
Kirchoff's Laws
Potential dividers

SUMMER 1

Conservation of energy
Density
Hooke's Law

Young's Modulus
Required Practical 6
Gas Laws

Molecular kinetic theory
Circular motion

SUMMER 2

Required Practical 8
Simple Harmonic Motion
Required Practical 7

PRIOR LEARNING

KS4 Physics

Year 11: Waves

PRIOR LEARNING

Year 10 Circuits

KS4 Physics

PRIOR LEARNING

HT1-3

Summative Assessment 1

A mix of MCQ and Longer Written GCE questions taken from topic studied

Summative Assessment 2

PPE AS Paper 1 and
AS Paper 2

Physics - Year 13

AUTUMN I

Newtons universal law of gravitation
Field strength
Potential
Orbits
Rotational Dynamics

Telescopes
Stellar Classification
Magnitude
Temp and Black Body
Angular Momentum
Thermodynamics
Engine cycles

HR Diagram
Cosmology
Exoplanets

AUTUMN 2

Coulombs Law
Electric field strength
Electric potential

Parallel Plate capacitors
Energy in RC circuits

Charge and Discharge
Required Practical 9

SPRING I

Flux Density
F=Bqv
Induction
Required Practical 11

The Cyclotron
AC / Transformers
Rutherford's Work
Decay and the inverse square law

Required Practical 12
Decay equations
Instability/Nuclear radius
Mass/Energy and fusion

SPRING 2

Preparation for Advanced Level examinations
Review of topics covered throughout the Advanced Level course

SUMMER I

Preparation for Advanced Level examinations
Review of topics covered throughout the Advanced Level course

SUMMER 2

Advanced level Examinations completed

PRIOR LEARNING

Year 12 Content

Year 13 HT1

PRIOR LEARNING

Building on concepts from Y12

PRIOR LEARNING

PRIOR LEARNING

Summative Assessment 1

Full A level Physics Paper 1 and Paper 2

Summative Assessment 2

P P E s Full A level Physics

Paper 1,2 and 3

Aspire - Grow - Succeed