

A Level Physics Schedule		Autumn 1							Autumn 2							Spring 1						Spring 2						Summer 1						Summer 2						
		2	3	4	5	6	7	8	1	2	3	4	5	6	7	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	7
Year 12	Teacher 1	Ch1	Ch 2		Ch 3	Ch 4		Ch 5		Ch 6		Ch13		PPE	Prac C/U	Ch 26																								
	Teacher 2	Ch10		Ch11		Ch 12		Ch 23		Ch 16		Ch 17			Ch 7	Ch 8																								
Year 13	Teacher 1	Ch 25		Ch 14		PPE	Ch 15		Ch 29		Ch 27		PPE	Revision																										
	Teacher 2	Ch 9		Ch 18			Ch 19		Ch 21		Ch 22																													

Year 12 Physics Topics

Ch1 Basic Ideas

In this chapter we look at the measurement of physical quantities.

Introduces:

- The difference between 'base' and 'derived' units
- How to use units to check equations
- How to use 'significant figures'
- How to deal with vectors

Practice:

- Text book questions

Assessment

- End-of-topic test

Ch2 Looking at forces

In this chapter we look at the three basic types of forces that exist in the universe.

Introduces:

- The different types of forces that exist
- What causes these forces
- How to draw the forces acting on an object

Practice:

- Text book questions

Assessment

- End-of-topic test

Ch3 Turning Effect of Forces

In this chapter we look at how 'where forces act' is as important as how large they are.

Introduces:

- How to calculate the turning effect of a force
- The conditions needed for an object to be in equilibrium
- The meaning and significance of the centre of gravity

Practice:

- Text book questions

Assessment

- End-of-topic test

Ch4 Describing motion

In this chapter we look at how we can describe the motion of an object.

Introduces:

- How to describe motion in terms of distance, displacement, speed, velocity, acceleration and time
- How to use equations that link these quantities
- How to draw and interpret graphs representing motion

Practice:

- Text book questions

Assessment

- End-of-topic test

Ch5 Newton's Laws and Momentum

In this chapter we look at how forces cause motion to happen.

Introduces:

- Newton's three laws of motion
- The meanings of inertia, momentum and impulse
- How to use Newton's laws and the conservation of momentum to solve problems

Practice:

- Text book questions

Assessment

- End-of-topic test

Ch6 Work, Energy and Power

In this chapter we introduce the work - energy principle.

Introduces:

- How to calculate work and power
- The equations for kinetic and gravitational potential energy
- How to use the work - energy principle to solve problems

Practice:

- Text book questions

Assessment

- End-of-topic test

Ch10 Wave Motion

In this chapter we look at how we can describe the basic behaviour of waves

Introduces:

- Wavelength, period and amplitude of a wave
- The difference between transverse and longitudinal waves
- Phase difference and polarisation

Practice:

- Text book questions

Assessment

- End-of-topic test

Ch11 Reflection and Refraction

In this chapter we look at how waves are reflected and refracted

Introduces:

- How waves are reflected and refracted
- Critical angle and total internal reflection
- How images are formed by lenses

Practice:

- Text book questions

Assessment

- End-of-topic test

Ch12 Interference and Diffraction

In this chapter we look at the some of the key evidence that light 'is a wave'

Introduces:

- How waves meet and 'superpose'
- How waves diffract through a gap
- How waves from multiple sources can 'interfere'

Practice:

- Text book questions

Assessment

- End-of-topic test

Ch13 Materials

In this chapter we look at how to describe and analyse the behaviour of materials

Introduces:

- How to calculate the density of materials
- How to use Hooke's Law to find extensions and forces
- How to find the energy stored in a stretched solid
- How to calculate 'stress', 'strain' and the Young modulus

Practice:

- Text book questions

Assessment

- End-of-topic test

Ch16 Current and Charge

In this chapter we look at how energy is carried by electric current

Introduces:

- Current as the flow of electric charge
- Potential difference and resistance
- The equations for electrical power

Practice:

- Text book questions

Assessment

- End-of-topic test

Ch17 Electrical Circuits

In this chapter we look at how to analyse simple electrical circuits

Introduces:

- How to analyse series and parallel components
- emf and internal resistance
- How to use potential dividers

Practice:

- Text book questions

Assessment

- End-of-topic test

Ch23 Photons and electrons

In this chapter we look at the idea that light can also be described as 'a particle'. This is our first taste of quantum mechanics!

Introduces:

- Photons - particles of light
- The Photo-electric effect
- How electrons can behave as waves
- How spectra depend on energy jumps

Practice:

- Text book questions

Assessment

- End-of-topic test

Year 13 Physics Topics

Ch7 Circular Motion

In this chapter we look at what is involved for objects to move in a circle

Introduces:

- Why an object moving in a circle must be accelerating
- The equations used to describe circular motion
- How to use the equations to analyse horizontal and vertical circles

Practice:

- Text book questions

Assessment

- End-of-topic test

Ch8 Gravitational Forces and Fields

In this chapter we look at gravitational fields

Introduces:

- How to calculate gravitational force
- What is meant by a gravitational field and gravitational potential
- The motion of satellites in orbit

Practice:

- Text book questions

Assessment

- End-of-topic test

Ch9 Simple Harmonic Motion

In this chapter we look at a class of periodic motion called simple harmonic motion (SHM)

Introduces:

- How to describe SHM using graphs and equations
- The energy transfers in SHM
- The effects of damping and resonance

Practice:

- Text book questions

Assessment

- End-of-topic test

Ch14 Thermodynamics

In this chapter we look at the effects of energy on a system

Introduces:

- Internal energy, heat and work
- Absolute zero and temperature changes
- Changes of state between solid, liquid and gas

Practice:

- Text book questions

Assessment

- End-of-topic test

Ch15 Gases and Kinetic Theory

In this chapter we look at how we can use particles to model how gases behave

Introduces:

- The gas laws and how to use them
- The kinetic theory of gases
- The Avagadro constant and the Boltzmann constant

Practice:

- Text book questions

Assessment

- End-of-topic test

Ch18 Magnetic Fields

In this chapter we look at how to describe and measure magnetic effects

Introduces:

- Magnetic field patterns and lines of flux
- How to calculate the strength of magnetic fields
- The force on a current within a magnetic field

Practice:

- Text book questions

Assessment

- End-of-topic test

Ch19 Electromagnetic Induction

In this chapter we look at the links between magnetic flux and electric currents

Introduces:

- Magnetic flux and flux linkage
- Faraday's Law and Lenz's Law
- The uses of Electromagnetic induction

Practice:

- Text book questions

Assessment

- End-of-topic test

Ch21 Electric Fields

In this chapter we investigate electric fields and compare them to gravitational fields

Introduces:

- How to calculate electric forces
- Electric field strength and electric potential
- Applications of electric fields

Practice:

- Text book questions

Assessment

- End-of-topic test

Ch22 Capacitors

In this chapter we study an electronic component called a capacitor

Introduces:

- How capacitors work in simple circuits
- How they are combined in series and parallel
- How the charge stored on a capacitor varies with time

Practice:

- Text book questions

Assessment

- End-of-topic test

Ch25 Radioactivity

In this chapter we look at the process of radioactive decay

Introduces:

- The structure of an atom
- The properties of ionising radiations
- The process of radioactive decay

Practice:

- Text book questions

Assessment

- End-of-topic test

Ch26 Nuclear Energy

In this chapter we look at how we can use the energy contained within the nuclei of atoms

Introduces:

- How to calculate the energy stored in an atomic nucleus
- The difference between fission and fusion
- How power stations control the release of nuclear energy

Practice:

- Text book questions

Assessment

- End-of-topic test

Ch27 Particle Physics

In this chapter we look at a model of the building blocks of all matter

Introduces:

- What the building blocks are
- What antimatter is and how it is created
- The fundamental forces that hold everything in the universe together

Practice:

- Text book questions

Assessment

- End-of-topic test

Ch29 Astrophysics

In this chapter we look at the processes within stars and galaxies

Introduces:

- How stars are classified and how they evolve
- How Doppler shift and red-shift are used
- The Stefan-Boltzmann Law and Wien's Law

Practice:

- Text book questions

Assessment

- End-of-topic test