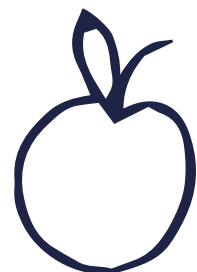




PHYSICS



YEAR 7

1. PARTICLES
• Changing state
• Density

2. SIMPLE FORCES
• Speed
• Pushing and pulling

3. ELECTRICITY
• Current
• Voltage
• Resistance
• Building circuits

4. SOUND
• Longitudinal waves
• The ear
• Sound proofing by design

5. ENERGY
• Measuring energy
• Paying for energy
• Renewable and non-renewable sources of energy

YEAR 8

6. LIGHT
• Seeing objects
• Dispersion
• Reflection
• Refraction
• The eye

GCSE

1. ENERGY STORES AND SYSTEMS
• Energy transfers
• Efficiency calculations
• Power
• Energy resources

12. ELECTRICAL ENGINEERING
• Applications of electrical circuits
• Using resistors
• Building electrical devices

11. PRESSURE
• Pressure calculations
• Hydraulics
• Atmospheric pressure

10. CONTACT FORCES
• Force diagrams
• Resultant forces
• Hooke's Law
• Friction

YEAR 9

9. HEATING AND COOLING
• Heat and temperature
• Convection
• Radiation
• Conduction
• Insulation

8. MAGNETISM
• Magnetic materials
• Uses of magnets
• Magnetic fields
• Electromagnets

7. GRAVITY
• Mass
• Weight
• Calculating weight

2. ELECTRICITY
• Charge
• Ohm's Law
• AC/DC supply
• Resistors
• National grid
• Static charge
• Electric fields

3. PARTICLE MODEL
• Changes of state
• Density
• Internal energy
• Specific heat capacity
• Particle motion in gases

4. ATOMS AND ISOTOPES
• Nuclear radiation
• Nuclear equations
• Half-life
• Radioactive decay
• Background radiation
• Fusion and fission

5. OBJECTS IN MOTION
• Scalar and vector measurements
• Work done calculations
• Elasticity
• Velocity
• Newton's laws of motion

6. FORCES
• Stopping distances
• Momentum
• Moments, levers and gears

7. WAVES
• Sound waves
• Reflection
• Electromagnetic spectrum
• Lenses

8. MAGNETISM
• Permanent and induced magnets
• Electromagnets
• Microphones and speakers
• Motor effect
• Induced potential

A LEVEL

6. OSCILLATIONS
• Circular motion
• Exploring centripetal forces
• Simple harmonic motion
• Damping and driving
• Resonance

5. PHOTONS AND QUANTUM PHYSICS
• The photon model
• Photoelectric effect
• Determining Planck's constant
• Wave-particle duality

4. WAVES
• Wave properties
• Diffraction and polarisation
• Electromagnetic waves
• Superposition
• Young's double slit experiment
• Stationary waves

3. MATERIALS
• Hooke's Law
• Elastic potential energy
• Deformation of materials
• Young's modulus

2. ELECTRICAL CIRCUITS
• Series and parallel circuits
• Kirchoff's laws
• Internal resistance
• Potential divider circuits
• Resistivity
• Mean drift velocity

1. MECHANICS
• Velocity and acceleration
• Determining
• Newton's laws
• Linear momentum
• Projectile motion
• Collisions/Impulse

9. THE UNIVERSE
• Solar system
• Life cycle of a star
• Satellites
• Red shift

7. THERMAL PHYSICS
• Brownian motion
• Specific latent heat
• Gas laws
• Ideal gases
• The Boltzmann constant

8. GRAVITATIONAL FIELDS
• Gravitational potential
• Kepler's laws of planetary motion
• Satellites
• Gravitational potential energy

9. NUCLEAR AND PARTICLE PHYSICS
• Rutherford's alpha particle scattering experiment
• Hadrons and leptons
• Quarks
• Half-life
• Radioactive dating
• Binding energy
• Fission and fusion

10. ELECTRIC AND MAGNETIC FIELDS
• Capacitance
• Charging and discharging capacitors
• Uniform electric fields
• Electric potential and energy
• Charged particles in magnetic fields
• Electromagnetic induction
• Flux and flux linkage

11. THE UNIVERSE
• Hubble's Law/calculating the age of the universe
• The big bang theory
• Evolution of the Universe
• The Doppler effect

12. MEDICAL IMAGING
• Interaction of X-rays with matter
• CAT Scans
• The gamma camera
• Positron-electron tomography
• Ultrasound

$$E=mc^2$$

