A Physics Experiments Paper 1



Determination of speed and acceleration, for example, use light gates

Investigate the relationship between the force exerted on an object and its change of momentum

Examination of projectile motion using strobe photography or a video camera to analyse motion

Use ICT to analyse collisions between small spheres

Find the centre of gravity of an irregular rod, or object

Investigate factors affecting acceleration using trolleys or an air track

Measure g using, for example, light gates and a timer.

Investigate the principle of conservation of energy, e.g. use light gates to measure the speed of a falling object and compare E_p lost with E_k gained.

Estimate power output of electric motor.

Measure current and voltage in series and parallel circuits. Use ohmmeter to measure total resistance of series/parallel circuits

Investigate I-V graphs for resistor, filament lamp, diode & thermistor

Measure the emf and internal resistance of a cell, for example, a solar cell

Use of ohmmeter and temperature sensor

Measure resisitivity of a metal and polythene

Use a digital voltmeter to investigate 'output' of a potential divider

Use an oscilloscope or data logger to display and analyse the potential difference (p.d.) across a capacitor as it charges and discharges through a resistor

Paper 2



Investigate wave properties using a wave machine or computer simulation of wave properties

Demonstration of longitudinal wave motion of sound using a loudspeaker. Demonstration using waves on a long spring

Demonstration of waves with a ripple tank

Stationary waves on a string/wire - Melde's experiment, sonometer

Measure the refractive index of both solids and liquids

Investigate polarisation of light - Models of structures to investigate stress concentrations.

Experiments on reflection and refraction at a material boundary

Spectra – spectrometers and gas filled tubes

Photoelectric effect - Demonstration of discharge of a zinc plate by ultra violet light

Doppler effect - Demonstration using a ripple tank or computer simulation

Demonstration of diffraction using a ripple tank. Measurement of the wavelength of light using a diffraction grating.

Estimate, and then measure, the weight of familiar objects

Investigate floating and sinking and how this is related to density and upthrust. Archimede's Principle.

Investigate how rate of fluid flow is related to viscosity. Investigate how viscosity of a fluid changes with temperature. Measurement of viscosity.

Investigation of Hooke's law and Young's modulus for copper, rubber etc.

Determine the focal length of a converging and diverging lens.

Calibrate a thermistor in a potential divider circuit as a thermostat

Determine the specific latent heat of a phase change

Investigate the relationship between pressure and volume of a gas at fixed temperature

Investigate the absorption of gamma radiation by lead

Determine the value of an unknown mass using the resonant frequencies of the oscillation of known masses