Physics Learning Journey

Newman Catholic College
Excellence Through Faith

Understanding and Applying Scientific Skills

Year 7 → Year 11

- Variables
- Drawing graphs and analysing graphical data
- Writing methods
- Analysis of secondary data
- Assessing impact of scientific concepts
- Modelling scientific concepts
- Understanding relationships between science and society
- Drawing conclusions
- IDEAL Identify, describe, explain, apply, link
- Applying maths to the scientific concepts
- Risk Assessment
- Describe patters

BTEC Applied Science

A-level Physics

Exam & Post – 16 Destination

YEAR 11

Physics Triple Topics

- Red-shift
- Life cycle of a star
- Transformers
- Microphones
- Loudspeakers
- Visible light
- Lenses
- Sound waves
- Reflection
- Atmospheric pressure
- Pressure in fluids
- Moments, levers and gears
- Background radiation
- Hazards of radioactive emissions
- Boyle's law
- Thermal insulation
- Nuclear fission & fusion
- Static electricity
- Changes in momentum
- Waves for detection
- Black body radiation
- Induced potential
- Satellites
- Solar system

Space

Magnetism & Electromagnetism

- Uses and applications of EM waves
- The motor effect
- Fleming's left hand rule
- Infrared radiation
- Measure wave characteristics in a ripple tank
- Electromagnetic waves
- Magnets
- Magnetic fields
- Electric motors

Waves

- Transverse and longitudinal

Forces

- Momentum
- Forces and breaking
- Effect of force on acceleration
- Describing motion
- Gravity
- Contact & non-contact forces
- Newton's laws
- Force vs extension of a spring
- Elasticity
- Work done = F x d
- Scalar and vector

Atomic structure

- Radioactive contamination
- Half life
- Nuclear equations
- Radioactive decay
- Development of the model of the atom
- Atoms and isotopes

- GCSE Physics required practicals

Energy

- Efficiency
- National and global energy resources
- Conservation of energy
- Specific heat capacity
- Power
- Calculating energy
- Energy stores & systems

Particle Model of Matter

- Changes of state
- Specific heat capacity
- Density
- Density of regular and irregular objects and liquids
- Internal energy
- Specific latent heat
- Pressure

Electricity

- Charge
- I-V Characteristics
- Series & parallel circuits
- Power and energy
- National grid
- Mains electricity
- Ohm's law
- Factors that affect resistance

- ELC
- Combined Year 1

YEAR 9

Space

- Mars Rover
- Satellites
- Colonising Mars
- Solar system
- Gravity
- The night sky

Waves

- Longitudinal & Transverse
- Sound
- Electromagnetic spectrum
- Ultrasound

Energy

- Radiation
- Temperature
- Infrared
- Conduction & Convection
- Work = F x d
- Levers & Pulleys

Electromagnets

- Hands on: Strength of an electromagnet
- Uses of electromagnets
- Magnetic fields
- Magnets

Forces

- Stretching & squashing
- Hooke's law
- Friction
- Drag
- Turning forces
- In gases
- Atmospheric pressure
- In solids
- In liquids

Pressure

Earth and Universe

- Colour
- Refraction
- Solar & lunar eclipses
- The ear
- Frequency and pitch
- Loudness and amplitude
- The eye
- Reflection
- Earth & Moon
- Hands on: Models in Science
- Energy dissipation
- Sound waves and speed
- Energy & Power
- Electrostatic fields
- Current
- Resistance
- Hands on: Motion of car on a ramp
- Distance – Time graphs
- Balanced & Unbalanced forces

Light

Sound

Energy

- Energy resources
- Energy stores
- Food and fuels
- Static electricity
- Series & Parallel circuits
- Potential difference
- Gravity
- Speed
- Types of forces

Electromagnets

Forces

YEAR 8

YEAR 7

Everyone Counts, Everyone Contributes, Everyone Succeeds