

Physics National 4

Award Received

National 4 Physics is graded **pass** or **fail**.



Entry Level: What do I need to do it?

Entry into N4 Physics will depend on your attainment in the S3 Science course. If you are going into S5/S6, entry will depend on your performance in your other National 4/5 courses.

If you wish to discuss your suitability, go see Miss Easton.

Course Content: What will I learn?

Electricity & Energy

- **generation and transmission** - efficiency, sustainability, energy transformations
- **electrical power** - energy, power, efficiency of appliances
- **electromagnetism** - magnetic field patterns, applications, transformers magnets and electromagnets
- **electronic circuits** - voltage, current and resistance, ammeters/voltmeters in series/parallel circuits, circuit components and symbols, resistance in parallel, analogue and digital, logic gates
- **gas laws and kinetic model** - pressure, volume and temperature, kinetic theory of gases



Waves & Radiation

- **transverse and longitudinal waves** - frequency, wavelength, speed and amplitude
- **sound** - speed of sound, decibels, noise pollution, protecting hearing including noise cancellation technology in Humvees and helicopters, sonar, ultrasound, sound reproduction technologies
- **electromagnetic spectrum** - applications in industry/leisure, hazards and protection, detection, refraction, long and short sight correction
- **nuclear radiation** - artificial and natural sources, medical and industrial applications, effects on living and non-living things, risk management

Dynamics & Space

- **speed and acceleration** - average and instantaneous speed, speed-time graphs and distance travelled, acceleration
- **forces** - Newtons laws, weight, mass and gravity, thermal protection for spacecraft
- **satellites** - natural and man-made, geostationary, curved reflectors and satellite communication, applications
- **cosmology** - solar system exo-planets, space exploration, light year, extra-terrestrial life

Teaching Methods: What will I do?

Much of the course will be teacher-led ... but you will also be involved in a variety of tasks including practical experiments and investigations, written work, research and presentation tasks.

Assessment: How will I be assessed?

You will be assessed as follows ...

- ✓ Unit assessments, covering ku and ps
- ✓ Investigation and a written report.
- ✓ Assignment, including researching and reporting on a relevant topic of your choice.



Homework.

Tasks will include ... background reading, internet research and completing tutorial questions.

You must be able to ... stick to deadlines set in order to be fully prepared for scheduled assessments.



Progression in the Senior Phase.

High achieving and committed N4 Physics students will be expected to progress to the National 5 level of study. This will give you hand-on experience to allow you to pursue a career in engineering, computing, medical Physics, space Physics, or apprenticeships like mechanic or joinery.