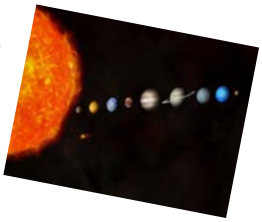
PHYSICS – S2 / S3 Elective

COURSE CONTENT – What will I learn?

The content will cover a range of topics taught in themed Units. The transferable skills You learn in Physics are highly valued by almost every profession.
Practical work plays a large part in the course.

Physics is a subject that explains how things work...it will help you develop your Understanding of the world around you! It will help you answer questions like:
How does my CD player work? How do all the mobile-phones connect to each other?...how come a bit of paper falls down just as fast as a hammer!? How do they wee fibre-optic Christmas trees work?
How does a satellite, that's way up in space make my telly work?, and how come the satellite doesn't *fall down again*!?

What's a rainbow and how can you see them when it's dry? What makes the doors open automatically when you walk near them? Why do planes not just fall down from the sky!? How do X-rays work? What's radioactivity all about, and what about lasers and ultra-violet, how do they work? How come my glasses work for me, but I can't use my pals? What's going on behind the plug socket on the wall?



Will anybody ever get to Mars! and how will they get there, how do the rockets work, *how come they don't run out of petrol*!?
...and many more!

You will learn about a huge range of topics and how they affect you every single day.
You'll find out about all sorts of ideas that will enable to figure out things for yourself and explain things to your pals and family.

Waves & Radiation,

You will learn about visible light and other kinds of waves, including lots of invisible ones and nuclear radiation.
with lessons covering:
Sound waves; Electro-magnetic waves including, light, micro-waves, Ultra-Violet, Infra-Red,
X-rays, gamma-rays, radio & TV waves; Wave properties of wavelength, amplitude, frequency and speed; Telecommunications; Fibre optics; Lasers & LED's.

Mechanics of Motion,
You will learn about how footballs, cars, rockets and other things move the way they do
with lessons covering:
What are Forces; Force Fields; Gravity and Weight; Friction; Air Resistance; Speed, Velocity and Acceleration; Speed-Time graphs.

Electricity and Electronics,
You'll learn how to make circuits using different kinds of components.
with lessons covering:
The structure of the Atom; Static Electricity and Current Electricity, Resistance, Current and Voltage; Electrical Circuits – Series and Parallel; Electromagnetism; LED's; Logic gates.

Energy and Matter,
You'll learn about all the different forms of Energy and how we generate electricity. You will also learn about heat energy and how forces make things either float or sink.
with lessons covering:
Solids, Liquids & Gases; Mass and Density; Pressure; Buoyancy – floating and sinking; Kinetic theory; Heat transfer by conduction, convection and radiation.

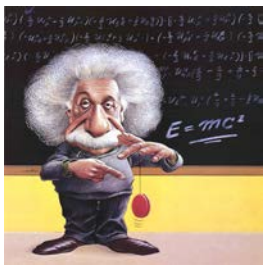
TEACHING METHODS – what will I do?
All students will be encouraged to take part in class discussions about the topic being covered. There will be lots of opportunities for you to work with others, to do experiments and to do problems. There will be lots of demonstrations of experiments too; practical work plays a large part in the course.

There will be lots of hand-out notes provided for students, to help them to *get on* with practical work and understanding. Students will also take written notes to further explain the main ideas in more detail and aid them in their homework assignments
The main priority of the class will be to "*learn Physics!".*

A range of Curriculum for Excellence approaches will be used through the course, which should allow pupils to learn by discovery and by taking ownership and responsibility of tasks. Pupils will also acquire transferable skills, thinking skills that use a common cross-curricular language of: remembering; understanding; applying; analysing; evaluating; creating. These skills should allow pupils to be able to cope well in the senior school and take more responsibility for their own learning.

ASSESSMENT: How will I be assessed?
Pupils will be assessed in a variety of different ways including: interactive multiple-choice tests using electronic IT devices (Qwizdom), traditional written paper assessments covering recall of knowledge & understanding (KU) and problem-solving (PS), project work which can be presented in a preferred choice of format including poster, leaflet, power-point, etc. Self-assessment and peer-assessment will also be used, along with class presentations.

HOMEWORK:
Homework will be expected to be done in a variety of ways including: written exercises; regular revision of class work; completing unfinished class work; project work; revision for tests. Homework tasks will normally be given once a week.



PROGRESSION IN SENIOR PHASE:
The S2/3 Physics Course is recommended to pupils who want to progress into the Physics Course at National 4 & 5 Levels, in particular. Higher Physics would then be a natural progression from there.
It will also be very useful for those pupils who would like to progress into the Chemistry and/or Biology Courses at National 4 and 5 Levels.
It would also be useful to pupils who would like to progress to the Science Course at National 4 Level.

COSTS:
None