

Physics

KS2

- Working Scientifically – How do you carry out a scientific enquiry?
- Space – describe the movement of the Earth, moon and sun.
- Forces – how many forces can you name? What affect do they have on objects.
- Light – how do we see things and what causes shadows?
- Electricity – can you make a circuit?

Year 7

- Heat - Is there a difference between temperature and heat? What is the coldest anything can be?
- Energy – Are there alternatives to burning fossil fuels? How can you measure the amount of energy in food?
- Electricity – How to be safe around electricity. How to turn a lemon into a battery.
- How science works – how important is the scientific method?

Year 8

- Light – reflection, refraction, dispersion, absorption. Can you find the critical angle?
- Sound – can echoes be useful? How fast does sound travel?
- Forces – stretching, floating, flying and accelerating all need forces.
- Space – is weight the same as mass? Has our sun always been the same as it is now?

Year 9

- Conservation of energy – How is energy stored? Can energy be transferred from one store to another?
- Energy resources – Physicists will be involved in the solution to global warming.
- Electric circuits – do you know the difference between an LED and a LDR?
- Series and Parallel circuits – there are two ways of joining electrical components.
- Mains electricity – electricity in your home.
- Static electricity – hair raising stuff!

Year 10

- Particle model of matter – Phenomena explained by assuming that everything is made of particles.
- Pressure: Engineers use the principles of pressure when designing submarines and spacecraft.
- Atoms – what is the structure of the atom?
- Nuclear physics – radioactive materials are used in medicine, industry, agriculture and the generation of electricity.
- Forces – engineers analyse forces when designing machines and instruments.

Year 11

- Waves – Waves carry energy and information from one place to another. Can someone ring your mobile phone if it is wrapped in tin foil?
- Magnetism and electromagnetism – What apparatus do you need to investigate the shape of a magnetic field? How can you make an electromagnet stronger?
- Space – How do we know that the universe is expanding? Will the sun become a black hole?

Year 12

- Measurements and errors – Practical work is underpinned by an awareness of the nature of measurement errors.
- Particles and radiation – If protons repel each other, what holds the nucleus together?
- Waves – How can we measure the wavelength of light? Can waves be stationary?
- Mechanics – How to calculate where a cannon ball will land once fired.
- Materials – Have you noticed that when a Mars bar acts as a cantilever it bends, but a KitKat snaps?
- Electricity – The resistivity of a superconductor is zero, but why is that useful?

Year 13

- Further Mechanics – Using the principles of simple harmonic motion to investigate a pendulum and a mass bouncing on a spring.
- Thermal Physics – What assumptions are made when deriving $pV = \frac{1}{3}Nm(c_{rms})^2$?
- Fields – What are the similarities and differences between electric and gravitational fields? Can you predict the rate at which a capacitor will discharge?
- Nuclear Physics – Learn how to handle our radioactive materials safely.
- Option Topic – which will you choose from Astrophysics, Medical Physics, Engineering Physics, Turning Points in Physics or Electronics?