

# Physics Learning Journey- 5 Year Curriculum

## Combined Science



A level Sciences – Biology, Chemistry and Physics  
(Need grade 6 and above and grade 6 in Maths)

Other post 16 options –  
Apprenticeships, other A  
level subjects, other  
BTEC subjects, other  
training, College?

BTEC applied science  
(Need Grade 5 in Science)



End of year  
exams!!

YEAR  
**11**

Required Practical  
revision

Revision of all topics

**P9 Newton's Laws**

In the 17th Century, a scientist called Isaac Newton investigated the way things move and produced three laws of motion. His laws are still very important, and examples can be found everywhere we look.

**Required practical-  
specific heat capacity**

Changes of state  
an particle model

**P8 Particle model of matter**  
The particle model is widely used to predict the behaviour of solids, liquids and gases and this has many applications in everyday life. It helps us to explain a wide range of observations and engineers use these principles when designing vessels to withstand high pressures and temperatures, such as submarines and spacecraft.

YEAR  
**10**

**P7 Magnetism and electromagnetism**

Magnetism is a fascinating invisible force – it influences the environment around it. A magnet is a material that can pull certain types of metal towards itself.

Wires, solenoid  
and  
electromagnets



Fleming's  
left-hand  
rule

Density of materials

Required practical-  
density



**Required practical-  
I-V characteristics**

Mains electricity

**Required practical-  
resistance**

Series and  
parallel circuits

**P6 Electricity**

Electricity is all around us. It powers our lights, charges our phones, and helps keep us warm. Electricity is a form of energy that can give things the ability to move and work.

Current and  
voltage



Ohm's Law

Direct and alternating  
current and energy  
transfers



The National grid



Magnetic  
fields

The motor  
effect and  $F=BIl$

YEAR  
**9**

Uses of nuclear  
radiation

Half life

Nuclear  
equations

Development of the  
model of the atom

Mass, atomic  
number and  
isotopes

Structure of  
the atom



Electromagnetic  
waves and the  
dangers

Doppler and  
superposition of waves

Sound



The eye and seeing  
colors

Radiation and  
contamination

Radioactive decay  
and nuclear  
radiation

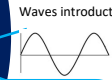


**P5 Atomic Structure**  
Atomic structure links between position of the element in the periodic table and its importance as a predictive tool. Radioactivity helps students to explore the moral, ethical, social, economic, environmental and technological implications and applications of physics

**Required practical-  
ripple tank**

Light waves-  
reflection/refraction

Waves introduction



**P4 Waves**  
Waves transfer energy from one object to another object by radiation, even when the objects are not touching. Waves carry information and help us to communicate, explore the universe, and transfer energy to where we want it.

**P3 Space**

Learning about space and the solar system can allow for greater appreciation for the frailness of Earth. Knowing why our planet is extra special and how we can protect it helps keep the planet safe and healthy

Speed, velocity  
and acceleration

Terminal  
velocity

Solar system

The Earth



Orbits

The moon

Life cycle of stars

YEAR  
**8**

**Required practical-  
Force and extension**

Hooke's law

Representing forces

Renewable  
energy

**Required practical-  
Radiation and  
absorption**

Conduction,  
convection  
and radiation

Changes in  
energy

**P1 Energy**

We use energy in all its forms almost every day. Engineers study these forms of energy to help create things that make our lives easier.

Mass and weight

Moments

Efficiency

Power

Work

Energy changes in  
systems

Energy changes in a  
system and  
stores

YEAR  
**7**

**P2 Forces**  
Forces are all around us and affect everything we do. A force is a push or a pull. Forces can make object moves or stop, speed them up or slow them down. Forces can also make objects change direction or shape.



Non  
Renewable  
energy

Power

Work

**Required practical-  
Thermal insulation**

Energy changes in  
systems

Energy changes in a  
system and  
stores



welcome