



# Physics Learning Journey



Go to University

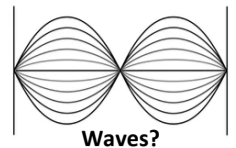
Start a degree level apprenticeship

Take a gap year

**Exam & Post – 16 Destination**

**Astrophysics and Cosmology**  
What is the structure of the universe?  
How do stars form and what is their life cycle?  
How do we measure distances in space?

**Thermal Physics**  
What is the difference between heat and temperature?  
How do gases behave under pressure?  
What is an ideal gas?



**Waves?**  
What are the properties of waves?  
What is a stationary wave?  
What is polarization?  
How do waves interfere?

**Electricity**  
How do current, potential and resistance change in different circuits?  
What is resistivity?  
What are Kirchoff's Laws?  
How can we analyse circuits in depth?

**Medical Physics**  
How is Physics used in medicine?

**Fields**  
What are gravitational fields?  
What are electric fields?  
What magnetic fields?

**YEAR 13**

**Nuclear Physics**  
What are quarks?  
How does radioactivity arise?  
How can we use nuclear fission and fusion?



**Capacitors**  
What is capacitance?  
How are capacitors used?

**Circular Motion and Oscillation**  
Why do objects move with circular motion?  
What is centripetal force?  
What is simple harmonic motion?



**Quantum Physics**  
What is a photon?  
What is photoelectric effect?



**Energy and Work**  
How is energy transferred?  
How are power and energy linked?

**Foundations of Physics**  
How do we measure physical quantities?  
How are uncertainties calculated?



**YEAR 12**

**Space**  
What makes up our solar system?  
What is the lifecycle of a star?  
What is the history and future of our universe?



GCSE exams start May-June

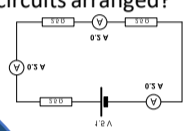
**Electromagnetism**  
How does a transformer work?  
How do motors work?



**Electricity in the Home**  
How does a plug work??  
How is electricity supplied to the home?



**Electrical Circuits**  
What are the properties of circuits?  
How are electrical circuits arranged?



**YEAR 11**



**Forces in Balance**  
What are vector and scalar quantities?  
What forces act between objects?  
What is a resultant force?

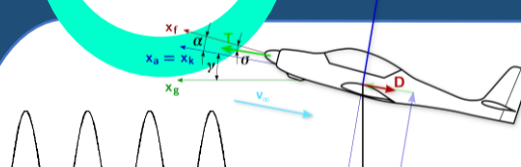
**Force and Motion**  
How do forces cause acceleration?  
What is terminal velocity?  
What is momentum?



**Radioactivity**  
What are the types of radioactivity?  
What are the uses and dangers of radioactivity?  
What is nuclear fission and fusion?

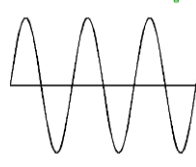


**YEAR 10**



**Motion**  
What is speed?  
How is acceleration and force linked?  
What is momentum and terminal velocity?

**Waves**  
What are the types of waves?  
What are the properties of waves?  
How do we use waves in industry?



**Energy Resources**  
What are the types of energy resources?  
How do resources impact the environment?



**Energy Stores**  
How is energy transferred?  
Is energy always conserved?  
Calculating the amount of energy in different stores

$$K = \frac{1}{2}mv^2$$



**EM waves**  
What is the electromagnetic spectrum?  
The uses of different EM radiation



**Molecules and Matter**  
What is density?  
What are the states of matter?



**Thermal Energy**  
How does energy transfer by heating?  
What is Specific Heat Capacity?  
How can we insulate our homes?



**Light**  
What is light made up of?  
How does the eye work?  
How do we see colours?

**Motion and Pressure**  
What is speed?  
What is pressure?  
What is a turning force?



**YEAR 9**

**YEAR 8**



**Sound**  
What is a sound wave?  
How can we detect sound?  
What are echoes and ultrasound

**Electricity and Magnetism**  
What is charge?  
What is an electromagnet?  
How do we make a circuit?



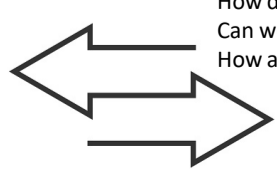
**Electricity**  
How do electrical appliances work?  
Can we measure current and potential difference?  
What is resistance?



**Energy**  
What is energy?  
What is a fuel?  
How do we pay for the energy we use in our homes?



**Forces**  
What is a force?  
How do forces affect objects?  
What happens when forces are balanced?



**Energy Transfers**  
How does energy transfer?  
Can we investigate energy changes?  
How are energy and power linked?



**Gravity**  
What is gravity?  
What is weight?  
How does weight change on different planets?



**YEAR 7**