Year 7 Learning Journey - Physics

Science – Physics | Learning Journey |

Year 8

Energy

Careers in engineering

Friction and streamlining

Calculating moments

Explaining why objects float or sink

Finding resultant force and calculating moments

Identifying forms of energy

Describing energy transfers

Calculating the cost of using appliances

Evaluating alternative energy resources

Electricity

Drawing and interpreting circuit diagrams

Identifying circuit symbols

Constructing series and parallel circuits and measuring current and potential difference

Electrical safety

Modelling electricity

Using and rearranging potential difference = current x resistance

Determining the density of materials, problem solving

Using and rearranging weight = mass x gravitational field strength

Plotting bar charts and making comparisons

Determining the relationship between force and spring extension

Taking measurements using a newtonmeter

Forces

Interpreting data and drawing conclusions

Plotting line graphs and lines of best fit

Method writing

Identifying scientific variables

Identifying apparatus

Working scientifically

YEAR 7

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Year 8 Learning Journey - Physics

Science – Physics | Learning Journey |

Year 9

Using and rearranging pressure = force/area

Measuring speed

Interpreting distance-time graphs

Describing moments and the use of pulleys

Earth and space

Describing relationship between orbit radius and period

Forces II

Explaining how colour filters work and how coloured objects appear in coloured light

Identifying the colours of light

Constructing ray diagrams showing the law of reflection and measuring angles

Constructing ray diagrams for refraction

Calculating resultant forces

Explaining factors affecting pressure

Explaining terminal velocity in terms of air resistance

Defining objects in space and the solar system

Discuss space exploration and its benefits

Describing wave behaviour, features and superposition

Investigating factors affecting the strength of an electromagnet

Describing magnets and magnetism

Explaining static electricity

Explaining how we see

Explaining how we hear and factors that can affect our hearing

Identifying features of a wave

Describing what makes a sound in terms of particles

Sound and light

Describing the use of motors

Plotting a magnetic field using a compass

Constructing circuits to determine resistance

Electricity and magnetism

YEAR 8

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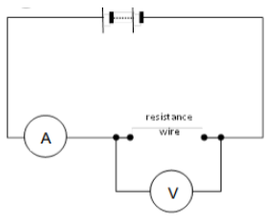
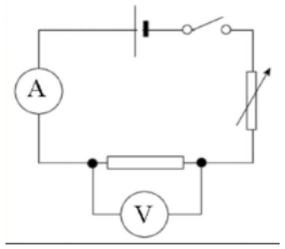
Year 9 Learning Journey - Physics

Science – Physics

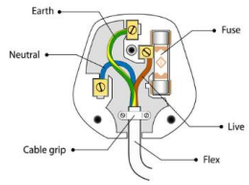
Learning Journey



Required practical: Investigating the resistance of wire



Required practical: Determining the I-V characteristics of components



Wiring a plug and explaining the safety features

Using power equations

Explaining static electricity

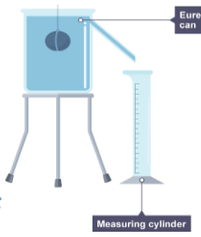
P3 Particle model of matter

Year 10

Explaining the factors affecting gas pressure

Using the equations for specific heat capacity and specific latent heat

Explaining particle behaviour and changing state



Required practical: Determining the density of objects

Calculating density

Describing the National grid

Describing AC and DC

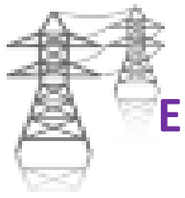
Measuring potential difference

Measuring current

Using the equation for resistance

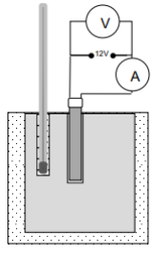
Using charge equations

Identifying circuit symbols and drawing circuits



P2 Electricity

Evaluating energy resources



Required practical: measuring specific heat capacity

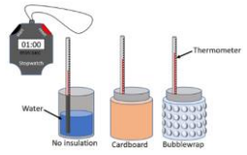
Discussing the demand and supply of electricity

Using and rearrange the equations for Ek, Ep and Ee

Using the equation for power

Using the equation for work done

Required Practical: Investigating thermal insulation



Calculating efficiency

Identifying energy stores

Describing energy transfers

P1 Energy

YEAR 9

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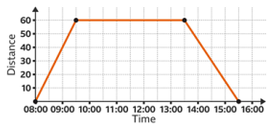
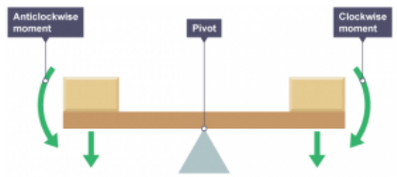
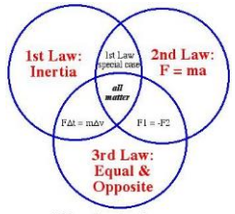
Year 10 Learning Journey - Physics

Computer Science | Learning Journey







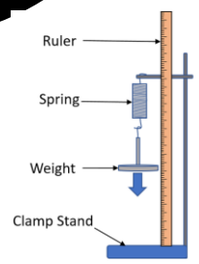
Newton's Laws

Drawing free body diagrams

Investigating the effect of varying the force on acceleration

Required practical: Investigating the relationship between force and extension for a spring

Year 11



Calculating weight

Interpreting Distance/time and speed/time graphs

Applying Newton's laws

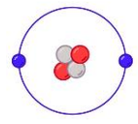
Calculating momentum **H**

Linking stopping distance to road safety

Explaining the principle of moments

Stating the purpose of levers and gears

Explaining the factors that affect fluid pressure



Comparing scalars and vectors

Giving uses of radiation

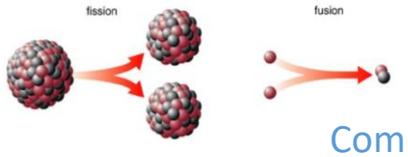
Calculating ½ life of radioactive isotopes

Comparing the properties of 3 types of radioactivity

Looking at the atomic structure of the atom

YEAR 10

P5 Forces



Comparing nuclear fission and fusion

Comparing contamination and irradiation

α

β

Constructing nuclear equations

Comparing the model of the atom over time

P4 Atomic Structure

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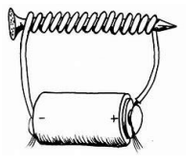
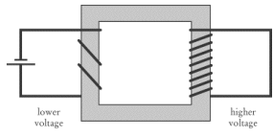
Year 11 Learning Journey - Physics

Science – Physics

Learning Journey



Describing how to make and change the strength of an electromagnet



Explaining how transformers work

P8 Space

Future Pathways

P7 Magnetism and electromagnetism

Describing magnets and magnetic fields

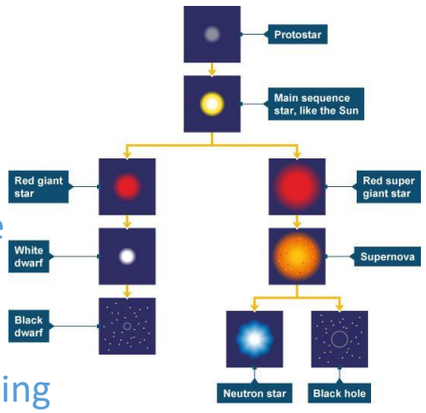
Explaining the motor effect

Explaining the generator effect

Describing objects in space and the Solar system

Discussing evidence for the Big bang

Explaining redshift



Constructing lens ray diagrams and calculating magnification

Explaining sound behaviour and ultrasound uses

Describing seismic waves

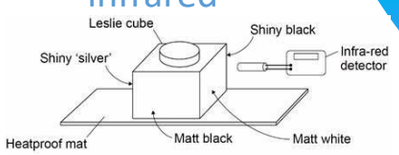
Applying the equation for magnetic force

Applying the equation $P_p/P_s = N_p/N_s$

Describing orbits

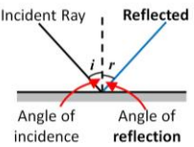
Describing the life cycle of a star

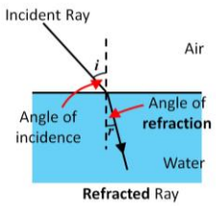
Required practical: Investigating the absorption and emission of infrared



Explaining global warming

Comparing electro-magnetic radiation





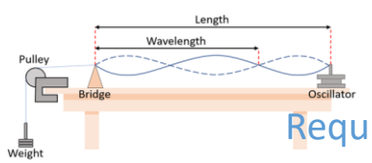
Required practical: Investigating reflection and refraction

Describing wave features

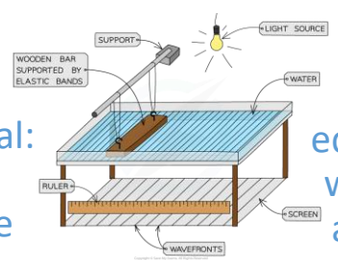
YEAR 11

Describing how light interacts with objects

Explaining how to send and receive radio waves



Required practical: measuring the speed of a wave



Using the equations for wave speed and period

Comparing transverse and longitudinal

P6 Waves

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