



Curriculum Map: Year 9 Subject Physics 21/22

Topic	Key Knowledge <i>What will all students KNOW by the end of the topic?</i>	Key Skills <i>What key skills will be learnt/developed by the end of the topic? What will all students be able to DO by the end of the topic?</i>	Assessment Opportunities <i>What are the key pieces of assessment? How will students be assessed?</i>
Energy	<ul style="list-style-type: none"> • Quantifying changes in energy stores using conservation of energy • Describing increases and decreases in the amounts of energy associated with movement, temperature, position in field (GPE) and elastic distortions • Power as the rate of doing work OR the rate of energy transfer Main energy resources <ul style="list-style-type: none"> • Renewable & non-renewable • Energy resources are used for transport, heating & electricity generation • Economic, social, ethical & political, issues 	Be able to use energy equations i (work done, EPE) Be practise using equations SI units Use of multipliers (especially kJ and kW) Identify patterns & trends in data given in graphical and tabula form Developing a line of argument using advantages and disadvantages of different energy resources	Questioning in classes Marking of work in books Energy Stores SMH quiz Conservation of Energy SMH Quiz KO Test Renewable Energy Assessed Task Questions in Autumn Assessment
Electricity	<ul style="list-style-type: none"> - Circuit symbols, current & potential difference - Series & parallel circuits - Required practical 4 – IV graphs (in 3 parts – resistor, filament lamp & diode) - Ohm’s law & resistance 	<ul style="list-style-type: none"> - Recognise & recall circuit symbols - Draw simple circuits including the positioning of voltmeters & ammeters - Building simple circuits - Calculations involving current, energy, charge, p.d. & time - Use of models to understand the unobservable - Building more complex circuits & taking measurements - Plot and draw appropriate graphs selecting appropriate scales for the axes. - Lines of best fit 	Questioning in classes Marking of work in books Circuits and Current SMH quiz Electricity practical Write up Quiz Ohms Law SMH Quiz Questions in Summer Assessment
Forces	<ul style="list-style-type: none"> - What are forces? - Contact & non-contact forces 	Draw free body diagrams of forces acting on an object - Practical skills in relation to measuring mass &	Questioning in classes Marking of work in books

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	<ul style="list-style-type: none"> - Freebody diagrams - Weight, mass & gravity - Forces & elasticity - Required Practical 6-Force & extension for a spring - Hooke's Law - Concept of directly proportionality 	<p>weight and using appropriate values to calculate g</p> <p>Recognition of variables that are directly proportional from data in a table & from a graph</p> <ul style="list-style-type: none"> - Recognition of when direct proportionality reaches a limit - Plot and draw appropriate graphs selecting appropriate scales for the axes. - Lines of best fit 	<p>Contact and Non contact Force SMH quiz</p> <p>KO Quiz</p> <p>Hooke's Law SMH Quiz</p> <p>Questions in Summer Assessment</p>
Particles in Matter	<p>Density differences between solids, liquids & gases</p> <ul style="list-style-type: none"> • Use of the equation density = mass/volume (including rearranging) • How to determine the density of regular and irregular shaped objects and liquids experimentally (GCSE Required Practical 3) • Differences in arrangement, motion & spacing of particles in solids, liquids and gases • The particle model of matter to explain density of materials. • Changes of state including heating & cooling curves • Internal energy of a system • Specific heat capacity. • Describing increases and decreases in the amounts of energy associated with temperatures • Specific latent heat 	<p>Use of formulae in calculations</p> <ul style="list-style-type: none"> • Calculations involving rearranging • Use of correct units • Ensuring that units match (e.g. the need to convert between g & kg if density is given in kg/m³ and mass in g) • Converting between cm & m; g & kg <p>Use of formulae in calculations</p> <ul style="list-style-type: none"> • Calculations involving rearranging • Use of correct units • Ensuring that units match (e.g. the need to convert between J & kJ if SHC or SLH given in kJ/kg°C and energy in J) 	<p>Questioning in classes</p> <p>Marking of work in books</p> <p>KO Quiz</p> <p>Write up of Specific Heat Capacity Practical</p> <p>Questions in Autumn Year 10 Assessment</p>
Atomic Structure	<ul style="list-style-type: none"> - Atoms & isotopes - Radioactive decay & nuclear radiation 	<p>Recall the history of the atom</p> <p>Describe how the model of the atom developed</p> <p>Recall key terminology including the nature of alpha, beta & gamma decay</p> <p>Balance nuclear equations</p>	<p>Questioning in classes</p> <p>Marking of work in books</p> <p>Alpha, Beta Gamma SMH quiz</p> <p>Questions in Autumn SMH quiz</p>