Year 10 Physics & Combined Science Physics	Half term 1	Half term 2	Half term 3	Half term 4	Half term 5	Half term 6
	Content delivered: **Unit 1 Energy:** Energy stores and systems Kinetic energy Gravitational potential energy Elastic potential energy Specific heat capacity Power Energy transfers Efficiency	**Content delivered:** **Unit 1 Energy**: Renewable and non-renewable resources Advantages and disadvantages of energy resources **Unit 2 Electricity:** Circuit diagram symbols Electrical charge and current Resistance and potential difference Direct and alternating potential difference Series and parallel circuits	**Content delivered:** **Unit 2 Electricity:** Mains electricity Domestic uses and safety Power Energy transfers in everyday appliances National Grid Static electricity (Physics only) Electric fields (Physics only)	**Content delivered:** **Unit 3 Particle model of matter:** Density Changing state Specific heat capacity Latent heat Particle motion in gasses Pressure in gasses (Physics only) Increasing the pressure in a gas (Physics only)	**Content delivered:** **Unit 4 Atomic structure:** Structure of the atom Mass, atomic number and isotopes Development of the atomic model Radioactive decay Nuclear radiation Nuclear equations Half-lives and radioactive decay Radioactive contamination	**Content delivered:** **Unit 4 Atomic structure:** Background radiation Half-lives of isotopes Nuclear fission Nuclear fusion Unit 1 recap and review for mock exam Unit 2 recap and review for mock exam Unit 3 recap and review for mock exam Unit 4 recap and review for mock exam
Key Words **Level 2** **Level 3**	Energy, Joule, transfer, dissipation, efficiency, kinetic, gravitational, elastic, specific heat capacity, power, Watt, kilo, renewable, non-renewable, insulation	Energy, Joule, transfer, dissipation, efficiency, kinetic, gravitational, elastic, specific heat capacity, power, Watt, kilo, renewable, non-renewable, insulation, rate, energy, charge, negative, positive, terminal, parallel, series, loop, potential difference	Rate, energy, charge, negative, positive, terminal, parallel, series, loop, potential difference	Conduction, convection Infra-Red radiation, dissipation, thermal conductivity, emit, absorb.	Proton, nucleus, neutron, electron, positive, negative, atomic number, atomic mass, isotope, plum pudding, Faraday	Proton, nucleus, neutron, electron, positive, negative, atomic number, atomic mass, isotope, plum pudding, Faraday
Where previous knowledge has occurred and future development **KS2 → KS3 → KS4 → KS5**	KS2: Investigating how things move KS3: Year 8 – waves KS3: Year 9 - friction KS4: Year 10 – nuclear radiation (P4) KS4: Year 11 – waves (P6) KS5: Simple harmonic motion	KS2: How electrical components function KS3: Year 7 - circuits KS4: Year 10 – static electricity (P2) KS4: Year 11 – electromagnets (P7) KS5: Electromotive force and internal resistance	KS2: How electrical components function KS3: Year 7 - circuits KS4: Year 10 – circuit diagrams (P2) KS4: Year 11 – electromagnets (P7) KS5: Electromotive force and internal resistance	KS2: States of matter KS3: Year 7 – changes of state KS3; Year 9 – pressure in gasses KS4: Year 10 – kinetic theory (C4) KS5: Kinetic theory of gases	KS2: Grouping materials based on their properties KS3: Year 7 –Solutions, pure substances and mixtures KS3: Year 8 – Elements and compounds KS4 – Models of the atom KS5: Particle physics	KS2: Investigating how things move KS3: Year 7 - Energy KS3: Year 9 – Radiation and waves KS4 – Background radiation KS5: Nuclear radiation
Common Misconceptions	Whether nuclear energy is renewable or non-renewable	Where to position ammeters and voltmeters in different circuits	How to rearrange multi-part equations	Confusing mass and weight	Nuclear radiation is always dangerous	Confusing fission and fusion
Literacy	Scientific writing (HSW): specific heat capacity NHTW reviews as starter activities	Scientific writing (HSW): resistivity NHTW reviews as starter activities	Writing to describe: how the National Grid works NHTW reviews as starter activities	Scientific writing (HSW): density NHTW reviews as starter activities	Writing to argue: the benefits of nuclear energy NHTW reviews as starter activities	NHTW reviews as starter activities
Numeracy	Rearranging equations Converting units Calculating percentages	Rearranging equations Drawing and interpreting graphs Calculating means	Rearranging equations Calculating percentages	Rearranging equations Drawing and interpreting graphs	Rearranging equations Drawing and interpreting graphs	Drawing and interpreting graphs
Homework	Completion of kerboodle/Seneca/carousel section quizzes	Completion of kerboodle/Seneca/carousel section quizzes	Completion of kerboodle/Seneca/carousel section quizzes	Completion of kerboodle/Seneca/carousel section quizzes	Completion of kerboodle/Seneca/carousel section quizzes	Completion of kerboodle/Seneca/carousel section quizzes
Assessment this half-term	Unit 1 test	Mix test from units 1 & 2	Mock exam – Units 1 & 2	Unit 3 test – including questions from units 1 and 2	Unit 4 test – including questions from units 1-3	Mock exam
Career opportunities **Employment Links**	LIFE SKILLS: Understanding why efficiency is important EMPLOYMENT: Wind farm technician	LIFE SKILLS: Understanding how to create a circuit EMPLOYMENT: Electrician	LIFE SKILLS: Understanding how to stay safe with electricity EMPLOYMENT: Electrical engineer	LIFE SKILLS: Understanding why objects float or sink EMPLOYMENT: Product design	LIFE SKILLS: Understanding the effects of radiation EMPLOYMENT: Nuclear operative	LIFE SKILLS: Resilience and organisation EMPLOYMENT: Health care physicist
Enrichment			Physics olympiad			
Practical activities/HSW	Specific heat capacity Energy transfers	Resistivity Potential difference Series and parallel circuits	Van de Graff – static electricity	Density		
Employability Skills	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive
IT Skills	IT1 & IT2: Appropriate websites and research for homework as well as recall quizzes	IT1 & IT2: Appropriate websites and research for homework as well as recall quizzes	IT1 & IT2: Appropriate websites and research for homework as well as recall quizzes	IT1 & IT2: Appropriate websites and research for homework as well as recall quizzes	IT1 & IT2: Appropriate websites and research for homework as well as recall quizzes	IT1 & IT2: Appropriate websites and research for homework as well as recall quizzes