	Y12	Y13
Week 1 w/b 5th Sept	Topic 1: Working as a Physicist Lesson 1: Course outline (key command words), working as a scientist, uncertainty experiments Lesson 2: Setting in test 1 notes, transition work – complete model answers (green pen), units – derived & base Lesson 3: Order of magnitude & Fermi questions	Topic 9: Thermodynamics Lesson 1: Settling in/recap work from July (U & Q & W) Lesson 2: rms calculations, Specific heat capacity, Specific latent heat Lesson 3: Plan CPAC12 Thermistor experiment Lesson 4: Black body radiation
Key Words	Base quantities, derived quantities, validation, integrity, communication, community, vectors, scalars, Fermi questions	SHC, SLH, temperature, heat, thermal energy, internal energy, absolute zero, microscopic, macroscopic
Common Misconceptions	All quantities are base (non-derived)	SHC is the amount of thermal energy held SLH is the amount of thermal energy released
Homework	Textbook and exam questions	Textbook and exam questions
Assessment this half-term	Settling in tests, definitions test, CPAC2	Thermodynamics topic test, definitions tests & CPAC12; 13; 14, 9 & 10
Career opportunities Employment Links	LIFE SKILLS: Numeracy and problem solving EMPLOYMENT: Foundation skill for any physics related job. https://www.iop.org/careers-physics	LIFE SKILLS: Numeracy and problem solving EMPLOYMENT: Foundation skill for any physics related job. https://www.iop.org/careers-physics
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
Week 2 w/b 12th Sept	Topic 1: Working as a Physicist & Topic 3: Electric Circuits Lesson 1: Settling in test 1, settling in test 2 notes, significant figures & plotting graphs Lesson 2: Recap electricity modelling, current, conductors & insulators Lesson 3: Question sheets to complete (intro 3, electric current & current and voltage) Lesson 4: Conduction in liquid/gas comparison, recap charge & current & drift Lesson 5: Settling in test 2, settling in test 3 notes, convert measurements Lesson 6: Question sheet to complete (intro 4) & complete green pen model answer corrections	Topic 9: Thermodynamics Lesson 1: Conduct CPAC12 Thermistor experiment Lesson 2: Write up/analyse CPAC12 Thermistor experiment Lesson 3: Recap gas laws (Boyle's & Charles' & Pressure) & ideal gas Lesson 4: Conduct experiment – specific latent heat of ice with immersion heater Lesson 5: Plan CPAC13 Specific latent heat of ice Lesson 6: Recap ideal gas & calculations Lesson 7: Recap the gas laws & calculations
Key Words	Significant figures, limitations, conductor, insulator, charge, current & drift	Thermistor, inversely proportional, changes of state, cooling curve
Homework	Textbook and exam questions	Textbook and exam questions
Assessment this half-term	Settling in tests, definitions test, CPAC2	Thermodynamics topic test, definitions tests & CPAC12; 13; 14, 9 & 10
Career opportunities Employment Links	LIFE SKILLS: Numeracy and problem solving EMPLOYMENT: Foundation skill for any physics related job. https://www.iop.org/careers-physics	LIFE SKILLS: Numeracy and problem solving EMPLOYMENT: Foundation skill for any physics related job. https://www.iop.org/careers-physics
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
Notes / developments / standardisation comments	Discussion idea points – modelling electric circuits. Full Edexcel specification topic list for A level Physics available at: Specification - A level (pearson.com)	Thermistor calibration experiment – ice/water & Bunsen burner CPAC write up to be completed in study periods Full Edexcel specification topic list for A level Physics available at: Specification - A level (pearson.com)

Week 3 **w/b 19th Sept**	Topic 3: Electric Circuits Lesson 1: Settling in test 2, recap circuit building (series & parallel) experiment Lesson 2: Electric circuits NHTW definitions, I=nAve, current & drift velocity Lesson 3: Charge & current calculations Lesson 4: Drift velocity calculations Lesson 5: Kirchhoff's 1st law, EMF, energy transfer & PD Lesson 6: EMF & PD calculations	Topic 9: Thermodynamics & Topic 12: Gravitational Fields Lesson 1: Conduct CPAC13 specific latent heat of ice Lesson 2: Write up/analyse CPAC13 specific latent heat of ice Lesson 3: Plan CPAC14 Boyle's Law Lesson 4: Conduct CPAC14 Boyle's Law Lesson 5: Write up/analyse CPAC14 Boyle's Law Lesson 6: Thermodynamics end of topic test Lesson 7: Gravitational forces & gravitational fields
Key Words	Current, charge, coulomb, ampere, conservation, Electromotive force	Changes of state, cooling curve, proportionality, force, field
Homework	Textbook and exam questions	Textbook and exam questions
Assessment this half-term	Settling in tests, definitions test, CPAC2	Thermodynamics topic test, definitions tests & CPAC12; 13; 14, 9 & 10
Life skills Career opportunities Employment Links	LIFE SKILLS: Numeracy and problem solving EMPLOYMENT: Foundation skill for any physics related job. https://www.iop.org/careers-physics	LIFE SKILLS: Numeracy and problem solving EMPLOYMENT: Foundation skill for any physics related job. https://www.iop.org/careers-physics
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
Week 4 **w/b 26th Sept**	Topic 3: Electric Circuits Lesson 1: Electric circuits NHTW definitions test, Resistance, Ohm's Law, resistors connected in series & in parallel Lesson 2: Calculate total resistance of circuits, recap resistance graph shapes (diode, thermistor, bulb, wire) Lesson 3: Experiment – investigate resistance of a filament lamp Lesson 4: Thermistor & diode, plotting graphs, superconductivity Lesson 5: Power calculations Lesson 6: Resistivity calculations	Topic 12: Gravitational Fields; Topic 9: Thermodynamics & Topic 6: Further Mechanics Lesson 1: Thermodynamics end of topic test green pen model answers Lesson 2: Gravitational forces & gravitational fields calculations Lesson 3: Gravitational forces & gravitational fields calculations Lesson 4: Thermodynamics NHTW definitions Lesson 5: Linear momentum, types of collisions Lesson 6: Momentum conservation, impulse & recap Newton's laws of motion (I, II & III) Lesson 7: Particle momentum & calculations
Key Words	Resistance, series, parallel, directly proportional, Ohmic, non-Ohmic, superconductivity	Internal energy, heat, temperature, force, field, proportionality, momentum, elastic, inelastic, collision
Homework	Textbook and exam questions	Textbook and exam questions
Assessment this half-term	Settling in tests, definitions test, CPAC2	Thermodynamics topic test, definitions tests & CPAC12; 13; 14, 9 & 10
Career opportunities Employment Links	LIFE SKILLS: Numeracy and problem solving EMPLOYMENT: Foundation skill for any physics related job. https://www.iop.org/careers-physics	LIFE SKILLS: Numeracy and problem solving EMPLOYMENT: Foundation skill for any physics related job. https://www.iop.org/careers-physics
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
Week 5 **w/b 3rd Oct**	Topic 3: Electric Circuits Lesson 1: Formula quiz; PD, resistance & resistivity calculations Lesson 2: Current electricity calculations Lesson 3: Resistance calculations	Topic 9: Thermodynamics; Topic 12: Gravitational Fields & Topic 6: Further Mechanics Lesson 1: Thermodynamics NHTW definitions test & air track investigations (momentum & KE) Lesson 2: Gravitational forces & gravitational fields NHTW definitions & momentum calculations Lesson 3: Energy loss calculations

	Lesson 4: Introduce CPAC layout – purpose & expectations Lesson 5: Plan CPAC 2 Resistivity Lesson 6: Plan CPAC 2 Resistivity	Lesson 4: Newton's Laws of motion calculations Lesson 5: Plan CPAC9 Force/change of momentum Lesson 6: Conduct CPAC9 Force/change of momentum Lesson 7: Momentum calculations
Key Words	Resistivity, SWG, hypothesis	Internal energy, heat, temperature, force, field, proportionality, collision, conservation
Homework	Textbook and exam questions	Textbook and exam questions
Assessment this half-term	Settling in tests, definitions test, CPAC2	Thermodynamics topic test, definitions tests & CPAC12; 13; 14, 9 & 10
Career opportunities Employment Links	LIFE SKILLS: Numeracy and problem solving EMPLOYMENT: Foundation skill for any physics related job. https://www.iop.org/careers-physics	LIFE SKILLS: Numeracy and problem solving EMPLOYMENT: Foundation skill for any physics related job. https://www.iop.org/careers-physics
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
Week 6 w/b 10th Oct	Topic 3: Electric Circuits Lesson 1: Conduct CPAC 2 Resistivity experiment Lesson 2: Electric circuit calculations Lesson 3: Potential divider Lesson 4: Electric circuit calculations Lesson 5: Recap EMF & PD Lesson 6: Exam question booklet D - Electricity	Topic 12: Gravitational Fields & Topic 6: Further Mechanics Lesson 1: Gravitational forces & gravitational fields NHTW test, momentum, work & energy, derive KE, non-relativistic particles Lesson 2: Energy calculations Lesson 3: Force calculations Lesson 4: Plan CPAC10 Ball bearing collisions Lesson 5: Conduct CPAC10 Ball bearing collisions Lesson 6: Angular displacement, angular velocity, linear velocity Lesson 7: Cyclotron, angular time period & frequency
Key Words	Resistivity, charge carrier, drift velocity, uniform	Force, field, conservation, energy, types of particle (relativistic & non-relativistic), collisions, angular, linear
Homework	Textbook and exam questions	Textbook and exam questions
Assessment this half-term	Settling in tests, definitions test, CPAC2	Thermodynamics topic test, definitions tests & CPAC12; 13; 14, 9 & 10
Career opportunities Employment Links	LIFE SKILLS: Numeracy and problem solving EMPLOYMENT: Foundation skill for any physics related job. https://www.iop.org/careers-physics	LIFE SKILLS: Numeracy and problem solving EMPLOYMENT: Foundation skill for any physics related job. https://www.iop.org/careers-physics
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
Week 7 w/b 17th Oct	Topic 3: Electric Circuits Lesson 1: Assess exam question booklet D - Electricity Lesson 2: Green pen model answers exam question booklet D - Electricity Lesson 3: Internal resistance, circuit equations Lesson 4: Power, Current & Voltage calculations Lesson 5: Plan CPAC3 Internal resistance Lesson 6: Plan CPAC3 Internal resistance & revise for end of topic test	Topic 6: Further Mechanics Lesson 1: Circular motion questions Lesson 2: Centripetal acceleration Lesson 3: Centripetal force & circular motion factors Lesson 4: Investigate circular motion (bung) Lesson 5: Analyse circular motion (graph plotting to determine m) Lesson 6: Banking, motion in vertical circles Lesson 7: Circular motion questions
Key Words	Internal resistance, cell	

Homework	Textbook and exam questions	Textbook and exam questions
Assessment this half-term	Settling in tests, definitions test, CPAC2	Thermodynamics topic test, definitions tests & CPAC12; 13; 14, 9 & 10
Career opportunities Employment Links	LIFE SKILLS: Numeracy and problem solving EMPLOYMENT: Foundation skill for any physics related job. https://www.iop.org/careers-physics	LIFE SKILLS: Numeracy and problem solving EMPLOYMENT: Foundation skill for any physics related job. https://www.iop.org/careers-physics
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
Week 8 w/b 31st Oct	Topic 3: Electric Circuits & Topic 5: Waves and Particle Nature of Light Lesson 1: Electric circuits end of topic test Lesson 2: Wave introduction – types, feature, motion Lesson 3: Electromagnetic waves – types, production, uses, dangers Lesson 4: Graphs for waves Lesson 5: Electric circuits end of topic test green pen model answers Lesson 6: Electric circuits end of topic test feedback	Topic: Mock exam fortnight Lesson 1: Mock Exam Lesson 2: Mock Exam Lesson 3: Mock Exam Lesson 4: Mock Exam Lesson 5: Mock Exam Lesson 6: Mock Exam Lesson 7: Mock Exam
Key Words	Longitudinal, transverse, electromagnetic, mechanical, amplitude, wavelength, period, frequency, rarefactions, compressions	N/A
Common Misconceptions	Sound is a transverse wave	N/A
Homework	Textbook and exam questions	Textbook and exam questions
Assessment this half-term	Mock examination	Mock examination, Further Mechanics topic test, definitions tests & CPAC16
Career opportunities Employment Links	LIFE SKILLS: Numeracy and problem solving EMPLOYMENT: Foundation skill for any physics related job. https://www.iop.org/careers-physics	LIFE SKILLS: Numeracy and problem solving EMPLOYMENT: Foundation skill for any physics related job. https://www.iop.org/careers-physics
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
Week 9 w/b 7th Nov	Topic 5: Waves and Particle Nature of Light Lesson 1: Wave review – points covered so far (& GCSE recap) Lesson 2: Recap reflection & experiment Lesson 3: Recap refraction & experiment Lesson 4: Recap diffraction & calculations Lesson 5: Superposition & phase difference Lesson 6: Refraction of light calculations	Topic: Mock exam fortnight Lesson 1: Mock Exam Lesson 2: Mock Exam Lesson 3: Mock Exam Lesson 4: Mock Exam Lesson 5: Mock Exam Lesson 6: Mock Exam Lesson 7: Mock Exam
Key Words	Reflection, refraction, angle of incidence, angle of reflection, angle of refraction, superposition, phase	N/A
Homework	Textbook and exam questions	Textbook and exam questions
Assessment this half-term	Mock examination	Mock examination, Further Mechanics topic test, definitions tests & CPAC16

Career opportunities Employment Links	LIFE SKILLS: Numeracy and problem solving EMPLOYMENT: Foundation skill for any physics related job. https://www.iop.org/careers-physics	LIFE SKILLS: Numeracy and problem solving EMPLOYMENT: Foundation skill for any physics related job. https://www.iop.org/careers-physics
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
Week 10 w/b 14th Nov	Topic 5: Waves and Particle Nature of Light Lesson 1: Coherence – destructive & constructive interference Lesson 2: Exam errors & misconceptions Lesson 3: Refractive index & calculations Lesson 4: Young's fringes experiment Lesson 5: Standing/stationary waves Lesson 6: Melde's experiment	Topic 6: Further Mechanics & Topic 13: Oscillations Lesson 1: Mock exam green pen model answers Lesson 2: Mock exam feedback Lesson 3: Further Mechanics NHTW definitions & revise for end of topic test Lesson 4: Circular motion questions Lesson 5: Circular motion questions Lesson 6: Simple Harmonic Motion terms, graphs & formulae Lesson 7: Link v & x, recap SHM formulae & graphs, identify energy in SHM
Key Words	Coherence, interference, refractive index, fringes, stationary	Angular, linear, momentum, collision, energy, simple harmonic motion
Homework	Textbook and exam questions	Textbook and exam questions
Assessment this half-term	Mock examination	Mock examination, Further Mechanics topic test, definitions tests & CPAC16
Life skills Career opportunities Employment Links	LIFE SKILLS: Numeracy and problem solving EMPLOYMENT: Foundation skill for any physics related job. https://www.iop.org/careers-physics	LIFE SKILLS: Numeracy and problem solving EMPLOYMENT: Foundation skill for any physics related job. https://www.iop.org/careers-physics
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
Week 11 w/b 21st Nov	Topic: Mock exam fortnight Lesson 1: Mock Exam Lesson 2: Mock Exam Lesson 3: Mock Exam Lesson 4: Mock Exam Lesson 5: Mock Exam Lesson 6: Mock Exam	Topic 6: Further Mechanics & Topic 13: Oscillations Lesson 1: Further Mechanics NHTW definitions test & end of topic test revision Lesson 2: Further Mechanics end of topic test Lesson 3: Damping – light, heavy, critical & over Lesson 4: Damping experiment & graph to plot/analyse Lesson 5: Oscillations – free, damped & forced Lesson 6: Resonance Lesson 7: Further Mechanics end of topic test green pen model answers
Key Words	N/A	Types of damping, types of oscillations, resonance
Homework	Textbook and exam questions	Textbook and exam questions
Assessment this half-term	Mock examination	Mock examination, Further Mechanics topic test, definitions tests & CPAC16
Career opportunities Employment Links	LIFE SKILLS: Numeracy and problem solving EMPLOYMENT: Foundation skill for any physics related job. https://www.iop.org/careers-physics	LIFE SKILLS: Numeracy and problem solving EMPLOYMENT: Foundation skill for any physics related job. https://www.iop.org/careers-physics

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
Week 12 w/b 28th Nov	Topic: Mock exam fortnight Lesson 1: Mock Exam Lesson 2: Mock Exam Lesson 3: Mock Exam Lesson 4: Mock Exam Lesson 5: Mock Exam Lesson 6: Mock Exam	Topic 13: Oscillations & Topic 10: Space Lesson 1: Barton's pendulums, damping graphs & ductile materials Lesson 2: Plan CPAC16 Mass/spring resonant frequencies Lesson 3: Conduct CPAC16 Mass/spring resonant frequencies Lesson 4: Oscillations NHTW definitions, gravitational fields, planetary motion Lesson 5: Trigonometric parallax, field lines diagrams Lesson 6: Luminosity & flux, cepheid variables Lesson 7: Light years, parsec units & calculations
Key Words	N/A	Damping, ductile, resonance, oscillations, trigonometric parallax, luminosity, flux, cepheid, parsec
Homework	Textbook and exam questions	Textbook and exam questions
Assessment this half-term	Mock examination	Mock examination, Further Mechanics topic test, definitions tests & CPAC16
Career opportunities Employment Links	LIFE SKILLS: Numeracy and problem solving EMPLOYMENT: Foundation skill for any physics related job. https://www.iop.org/careers-physics	LIFE SKILLS: Numeracy and problem solving EMPLOYMENT: Foundation skill for any physics related job. https://www.iop.org/careers-physics
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
Week 13 w/b 5th Dec	Topic 5: Waves and Particle Nature of Light Lesson 1: Mock exam green pen model answers Lesson 2: Mock exam feedback Lesson 3: Recap standing/stationary waves & diffraction Lesson 4: Applications of standing/stationary waves Lesson 5: Wave graph questions Lesson 6: Resonance tube experiment	Topic 13: Oscillations & Topic 10: Space Lesson 1: Oscillations NHTW definitions test &Hertzsprung-Russell diagram (star temperatures & luminosity) Lesson 2: Life cycle of a main sequence star – birth, formation Lesson 3: Main sequence star, red giants, red/white & black dwarfs, supergiants Lesson 4: Black holes & black body radiators Lesson 5: Taboo revision cards, sun suffix, luminosity recap & neutron capture Lesson 6: Wien's Law calculations, Stefan-Boltzmann Law calculations Lesson 7: Mass & energy calculations
Key Words	Standing/stationary, resonance	Temperature, luminosity, main sequence, giant, dwarf
Homework	Textbook and exam questions	Textbook and exam questions
Assessment this half-term	Mock examination	Mock examination, Further Mechanics topic test, definitions tests & CPAC16
Career opportunities Employment Links	LIFE SKILLS: Numeracy and problem solving EMPLOYMENT: Foundation skill for any physics related job. https://www.iop.org/careers-physics	LIFE SKILLS: Numeracy and problem solving EMPLOYMENT: Foundation skill for any physics related job. https://www.iop.org/careers-physics
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

Week 14 **w/b 12th Dec**	Topic 5: Waves and Particle Nature of Light Lesson 1: Behaviour of waves Lesson 2: Total internal reflection (TIR) Lesson 3: TIR experiment – determine the critical angle Lesson 4: Plane polarised light Lesson 5: Polarised light experiment Lesson 6: Diffraction of waves & electron diffraction comparison	Topic 10: Space & Topic 11: Nuclear Radiation Lesson 1: Expanding universe, red shift, Hubble's Law Lesson 2: Fate of the universe, dark matter Lesson 3: Space NHTW definitions & nuclear binding energy Lesson 4: Nuclear binding energy calculations Lesson 5: Mass defect & binding energy per nucleon Lesson 6: Nuclear fission, nuclear fusion Lesson 7: Advantages & disadvantages of nuclear fission & fusion
Key Words	Total internal reflection, plane, polarised, diffraction	Expansion, contraction, red shift, dark matter, binding energy, defect, fission, fusion
Homework	Textbook and exam questions	Textbook and exam questions
Assessment this half-term	Mock examination	Mock examination, Further Mechanics topic test, definitions tests & CPAC16
Career opportunities Employment Links	LIFE SKILLS: Numeracy and problem solving EMPLOYMENT: Foundation skill for any physics related job. https://www.iop.org/careers-physics	LIFE SKILLS: Numeracy and problem solving EMPLOYMENT: Foundation skill for any physics related job. https://www.iop.org/careers-physics
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
Week 15 **w/b 19th Dec**	Topic 5: Waves and Particle Nature of Light Lesson 1: Reflection & pulse echo Lesson 2: Reflection calculations	Topic 10: Space & Topic 11: Nuclear Radiation Lesson 1: Space NHTW definitions test, atomic structure, isotopes Lesson 2: Background radiation Lesson 3: Nuclear radiation types (alpha, beta, gamma), radiation type dangers, cloud chamber tracks
Key Words	Reflection, pulse, echo	Atom, nucleus, isotope, background, radiation, alpha, beta, gamma
Homework	Textbook and exam questions	Textbook and exam questions
Assessment this half-term	Mock examination	Mock examination, Further Mechanics topic test, definitions tests & CPAC16
Career opportunities Employment Links	LIFE SKILLS: Numeracy and problem solving EMPLOYMENT: Foundation skill for any physics related job. https://www.iop.org/careers-physics	LIFE SKILLS: Numeracy and problem solving EMPLOYMENT: Foundation skill for any physics related job. https://www.iop.org/careers-physics
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
Week 16 **(w/b Wed 4th Jan)**	Physical Properties Lesson 1: Viscosity CPAC prep Lesson 2: Viscosity CPAC Lesson 3: CPAC write up Lesson 4: Hooke's Law experiment within limit of proportionality. Write up Lesson 5: Graph up and calculate spring constant. Lesson 6: Strain: Theory for springs in series, start experiment	1. Introduction to the Standard Model 2. Leptons and their properties 3. Quarks and their properties 4. The formation of baryons from quarks 5. The formation of mesons from quarks 6. Exchange bosons and forces 7. Exam practice
Key Words **Level 2** **Level 3**	Viscosity, Stoke's Law, viscous drag, upthrust, non-stationary surface	NHTW grid - particles

Common Misconceptions	Individual feedback given to each student detailing misconceptions	Most find topic too abstract
Homework	Ensure write-up completed.	Past paper questions – sub-atomic particles
Assessment this half-term	Term 3 – in-class test (EAT SUR WAV)	In-class test and retest
Career opportunities Employment Links	LIFE SKILLS: Numeracy and problem solving, following instructions EMPLOYMENT: Fluid dynamic in process engineering. Aerodynamic design in automotive engineering	LIFE SKILLS: Imagination and abstract thinking EMPLOYMENT: Particle physicist, Nuclear physicist, Fusion Physicist
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
IT Skills	**IT1 & IT2** CPAC research and write up	
Week 17 (w/b 9th Jan)	Physical properties Lesson 1: Complete springs in series experiment, graph up. Lesson 2: Theory for springs in parallel, begin experiment Lesson 3: Complete experiment for springs in parallel and graph up Stress and strain Lesson 1: Idealised graph of stress vs strain and features of graph Lesson 2: Young's modulus and practise calculations Lesson 3: Young's modulus practise exam calculations	1. Conservation of charge and particle interactions 2. Conservation of baryon and lepton number in interactions 3. Changes to strangeness in interactions 4. Relativistic effects to particle lifetimes 5. Particle behaviour and absolute zero 6. Comparing temperature scales 7. Exam practice
Key Words Level 2 Level 3	Stress, strain, extension, compression, elastic limit, limit of proportionality, Yield, UTS, elastic limit, limit of proportionality, plastic and elastic behaviour, brittle, ductile	NHTW grid Temperature, pressure and volume defs
Common Misconceptions	Students forget to subtract Lo from L.	Difficult for students to imagine an object occupying zero volume
Homework	Complete all 3 graphs and calculations of spring constant k.	Revise for in-class test
Assessment this half-term	Term 3 – in-class test (EAT SUR WAV HFS)	In-class test and retest
Career opportunities Employment Links	LIFE SKILLS: Hand/eye coordination skills, measuring skills EMPLOYMENT: Mechanical engineer, architect, e.g measurements of stress and strain in buildings and bridges.	LIFE SKILLS: Imagination and abstract thinking EMPLOYMENT: Particle physicist, Nuclear physicist, Fusion Physicist
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
Week 18 (w/b 16th Jan)	Lesson 1: Model exemplar answers into a fresh paper Lesson 2: Model exemplar answers into a fresh paper Lesson 3: Model exemplar answers into a fresh paper Stress and strain Lesson 1: CPAC – Young's Modulus - prep Lesson 2: CPAC -Young's Modulus Lesson 3: CPAC – write-up	1. Investigating thermostats 2. Energy distribution and the Maxwell–Boltzmann curve 3. Molecular kinetic energy 4 & 5 In class test 6 & 7 Model exemplar answers
Key Words Level 2 Level 3	In NHTW grids 1-6	NHTW grid Temperature, pressure and volume defs
Common Misconceptions	Learn exemplar answers	Difficult for students to imagine an object occupying zero volume
Homework	Reviewed in individual feedback sheet	Revise for in-class test
Assessment this half-term	Term 3 – in-class test (EAT SUR WAV HFS)	In-class test and retest
Career opportunities	LIFE SKILLS: Numeracy and problem solving. EMPLOYMENT: Management of stress under test conditions.	LIFE SKILLS: Imagination and abstract thinking EMPLOYMENT: Particle physicist, Nuclear physicist, Fusion Physicist

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
IT Skills	**IT1 & IT2** CPAC research and write up	
Week 19 (w/b 23rd Jan)	Physical Properties Lesson 1: Work done on a spring + experiment Lesson 2: Exam questions to practise on energy density and work done on a spring Lesson 3: Retest Physical properties/Electricity Lesson 1: Strain hardening and bubble rafts. Lesson 2: Symbols for devices and components Lesson 3: Current behaviour; K1 and defs	1. Describing specific heat capacity 2. Investigating specific heat capacity 3. Describing latent heat 4. Investigating specific latent heat 5. The behaviour of a black body radiator 6 & 7: Retest
Key Words Level 2 Level 3	NHTW grids 1-6 + waves	NHTW grid Temperature, pressure and volume defs
Common Misconceptions	Reluctance to count squares and relate to an equation – the science to explain why they are doing what they are doing	
Homework	Energy density work sheet	
Assessment this half-term	Term 4 – in-class test (EAT SUR WAV HFS)	In-class test and retest
Career opportunities Employment Links	LIFE SKILLS: Hand/eye coordination skills, measuring skills EMPLOYMENT: Mechanical engineer, architect (especially damping of resonance).	LIFE SKILLS: Resilience EMPLOYMENT: Particle physicist, Nuclear physicist, Fusion Physicist
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
Week 20 (w/b 30th Jan)	Electricity Lesson 1: Experiment to prove K1 Lesson 2: Voltage rules, K2 and defs Lesson 3: Experiment to prove K2. Lesson 4: Test Lesson 5: Modelling exemplar answers Lesson 6: Modelling exemplar answers	1. Boyle's law 2. Investigating Boyle's law 3. Charles's law 4. The pressure law 5. The equation of state for an ideal gas 6. Deriving the kinetic theory equation 7. Molecular kinetic energy
Key Words Level 2 Level 3	NHTW grid electricity	NHTW grid Temperature, pressure and volume defs
Common Misconceptions	Conventional current vs electron flow	
Homework	Revise for term 4 test	
Assessment this half-term	Term 4 – in-class test (EAT SUR WAV HFS)	In-class test and retest
Career opportunities Employment Links	LIFE SKILLS: Know electrical symbols used in a circuit diagram EMPLOYMENT: Electrical Engineer, Electronic Engineer, Geophysicist - resistivity	LIFE SKILLS: Resilience EMPLOYMENT: Particle physicist, Nuclear physicist, Fusion Physicist
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
Week 21 (w/b 6th Feb)	Electricity Lesson 1: Re-test Lesson 2: Ohm's Law Lesson 3: 4 factors affecting resistance	1. The sources of background radiation 2. Investigating background radiation 3. Investigating the penetrating power of radiation 4. Describing alpha, beta and gamma radiation

	Lesson 4: 4 Factors affecting resistance Lesson 5: Go through Easter exam question – exemplar answers Lesson 6: I/V characteristic graph for a lamp - theory	5. Radioactive safety measures 6. Investigating the absorption of gamma radiation by lead 7. The decay constant
Key Words **Level 2** **Level 3**	Electricity NHTW grid	NHTW grid – Radioactivity defs
Common Misconceptions	V = I x R is NOT Ohm's Law!	
Homework	Easter electricity exam questions	
Assessment this half-term	Term 4 – in-class test (EAT SUR WAV HFS)	In-class test and retest
Career opportunities Employment Links	LIFE SKILLS: calculation layout and rearranging equations EMPLOYMENT: Electrician, electrical engineer, electronic engineer	LIFE SKILLS: Management of stress in test situations. EMPLOYMENT: Particle physicist, Nuclear physicist, Fusion Physicist
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
Week 22 (w/b 13th Feb)	Electricity Lesson 1: I/V characteristics for a lamp experiment Lesson 2: Exam questions on I/V characteristics for a lamp separated into describe and explain. Lesson 3: I/V characteristics for an Ohmic resistor Lesson 4: I/V characteristics for a diode - experiment Lesson 5: Thermistors – experimental data Lesson 6: LDRs – experimental data	1. Rate of decay and activity 2. Half-life 3. Investigating decay rates 4. Analysis of decay curves to determine half-life 5. Logarithms and radioactive decay 6. Retest 7. Correcting exemplars
Key Words **Level 2** **Level 3**	NHTW grid electricity	NHTW grid – Radioactivity defs
Common Misconceptions	Describing a is proportional to b (not "they are") Conventional current vs electron flow. Understanding forward bias in relation to conventional current	
Homework	Learn 6-mark standard answer	
Assessment this half-term	Term 5 – in-class test (EAT SUR WAV HFS DIG)	In-class test and retest
Career opportunities Employment Links	LIFE SKILLS: Graph interpretation skills, use of command words; describe and explain EMPLOYMENT: Electrician, electrical engineer, electronic engineer	LIFE SKILLS: Management of stress in test situations. EMPLOYMENT: Particle physicist, Nuclear physicist, Fusion Physicist
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
Week 23 (w/b 27th Feb)	Electricity Lesson 1: Resistivity theory Lesson 2: Exam questions on resistivity Lesson 3: CPAC Resistivity prep Lesson 4: CPAC - resistivity Lesson 5 & 6: Ensure CPAC resistivity written up and complete	1. Energy and mass equivalent 2. The mass deficit 3. Nuclear binding energy 4. Explaining nuclear fusion using binding energy 5. Explaining nuclear fission using binding energy 6. The components of a fission reactor 7. Reactor structure
Key Words **Level 2** **Level 3**	NHTW grid electricity	NHTW grid – Grav fields defs and radioactivity

Common Misconceptions	Conventional current vs electron flow	
Homework	Revise for term 5 test	Past paper questions – Grav 1 Q and A. Revise for mocks.
Assessment this half-term	Term 4 – in-class test (EAT SUR WAV HFS DIG)	Mock paper 1 and Mock Paper 2 and re-tests
Career opportunities Employment Links	LIFE SKILLS: Data processing and graphical work EMPLOYMENT: Electrical Engineer, Electronic Engineer, Geophysicist - resistivity	LIFE SKILLS: Safety around radioactivity EMPLOYMENT: Nuclear physicist, all employment at Sellafield
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
IT Skills	**IT1 & IT2**: Research and completion of CPAC	
Week 24 (w/b 6th Mar)	Electricity Lesson 1: Resistivity theory Lesson 2: Resistivity practise questions Lesson 3: Potential divider circuits Lesson 4: Internal resistance of a power supply Lesson 5: Internal resistance of a power supply - exepriment Lesson 6: Drift velocity and I = nAVe	1. Chain reactions and their control 2. Nuclear power issues 3. Gravitational field strength 4. Gravitational potential 5. Linking gravitational potential and field strength 6. Comparing gravitational and electric fields 7. Exam practice
Key Words Level 2 Level 3	NHTW grid electricity	NHTW grid – Grav fields defs
Common Misconceptions	Electrons actually move at the speed of a snail	
Homework	Revise for mock	Revise for Mock paper 1 and paper 2
Assessment this half-term	Term 4 – in-class test (EAT SUR WAV HFS DIG)	Mock paper 1 and Mock Paper 2 and re-tests
Career opportunities Employment Links	LIFE SKILLS: calculation layout and rearranging equations EMPLOYMENT: Electrician, electrical engineer, electronic engineer	LIFE SKILLS: Knowledge of weights and measures EMPLOYMENT: Geophysicist (potential fields specialist), Astronomer
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
Week 25 (w/b 13th Mar)	Lesson 1: Electricity test Lesson 2: Modelling exemplar answers Lesson 3: Modelling exemplar answers Lesson 4: RE-TEST Mock P1 exam Lesson 5: Feedback from mock P1 exam Lesson 6: Feedback from mock paper 1 exam	1. Basic stellar classification 2. The Stefan–Boltzmann law 3. Wien's law 4. The details of spectral classes 5. Line spectra 6. The Hertzsprung–Russell diagram 7. Stellar evolution
Key Words Level 2 Level 3	NHTW grid electricity	NHTW grid – Grav fields defs and space
Common Misconceptions	Electrons actually move at the speed of a snail	
Homework	Revise for mock	Revise for mock re-test
Assessment this half-term	Term 4 – in-class test (EAT SUR WAV HFS DIG)	Mock exam papers
Career opportunities Employment Links	LIFE SKILLS: calculation layout and rearranging equations EMPLOYMENT: Electrician, electrical engineer, electronic engineer	LIFE SKILLS: Knowledge of weights and measures EMPLOYMENT: Geophysicist (potential fields specialist), Astronomer
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

Week 26 (w/b 20th Mar)	<u>Waves</u> 1. Explain the difference between longitudinal and transverse waves 2. Describe longitudinal waves, particularly in terms of pressure variation and the displacement of molecules 3. Describe transverse waves 4. Understand the terms amplitude, frequency, period and wavelength. 5. Define wave speeds, measure the speed of sound in air, and derive and use the wave equation 6. Understand that waves can be reflected and transmitted at an interface between media	1. Units of distance in astrophysics 2. Using parallax to measure distance 3. The parsec as a unit of distance 4. Intensity and distance relationships 5. Standard candle techniques 6 & 7. Introducing the Doppler effect
Key Words **Level 2** **Level 3**	NHTW grid waves defs.	NHTW grid – Grav fields defs + space
Common Misconceptions	Learn def for transverse and longitudinal waves Students must connect the arrow the part of the wave that they are labelling and not the air. Use of engineering arrows.	Revise for re-test
Homework	Learn appropriate selection of defs (waves NHTW grid)	
Assessment this half-term	Term 4 – in-class test (EAT SUR WAV)	Mock paper 1 and Mock Paper 2 and re-tests
Career opportunities Employment Links	LIFE SKILLS: Numeracy and literacy EMPLOYMENT: Sound engineer, seismic geophysicist	LIFE SKILLS: Knowledge of weights and measures EMPLOYMENT: Geophysicist (potential fields specialist), Astronomer
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
Week 27 (w/b 27th Mar)	<u>Waves</u> 1 Define wave speeds, measure the speed of sound in air, and derive and use the wave equation 2. Understand that waves can be reflected and transmitted at an interface between media 3. Understand the term critical angle 4. Predict whether total internal reflection will occur at an interface. 5. Understand what is meant by refraction 6. Understand how to measure the refractive index of a solid material	1 & 2. The Doppler effect and absorption spectra 3. Hubble's law 4. Using Hubble's law to determine the age of the Universe 5. Open, closed and flat Universe 6. Dark matter and its detection 7. Dark energy
Key Words **Level 2** **Level 3**	See NHTW grid - defs for waves	NHTW grid – Grav fields defs + space
Common Misconceptions	Equations for C and n not well understood or leaned.	Revise for re-test
Homework	Learn a selection of defs from NHTW grid - waves	
Assessment this half-term	Term 4 – in-class test (EAT SUR WAV HFS)	Mock paper 1 and Mock Paper 2 and re-tests
Career opportunities Employment Links	LIFE SKILLS: Understanding of long and short sightedness EMPLOYMENT: Optician, Opthalmic optician, Fibre Optic Cable engineer	LIFE SKILLS: Knowledge of weights and measures EMPLOYMENT: Geophysicist (potential fields specialist), Astronomer
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
Week 28 (w/b 17th Apr)	<u>Waves</u> 1. Understand that waves can be reflected and transmitted at an interface between media 2. Understand the term critical angle 3. Predict whether total internal reflection will occur at an interface 4. Understand what is meant by refraction 5. Understand how to measure the refractive index of a solid material 6. Use the Snell's law equation relating to refraction	1. Examining a simple oscillating spring 2. The period of motion for an oscillating spring 3. Investigating a pendulum 4. The relationship between circular motion and SHM 5. Examining SHM with motion graphs 6. Deriving SHM equations 7. Energy transfer in SHM systems
Key Words **Level 3**	See NHTW grid - defs for waves	SHM 1-6 NHTW grids

Common Misconceptions	Equations for C and n not well understood or leaned.	
Homework	Learn a selection of defs from NHTW grid - waves	Targeted revision questions
Assessment this half-term	Term 5 – in-class test (WAV)	In-class test and re-test
Career opportunities Employment Links	LIFE SKILLS: Understanding of long and short sightedness EMPLOYMENT: Optician, Opthalmic optician, Fibre Optic Cable engineer	LIFE SKILLS: Numeracy and literacy EMPLOYMENT: Fairground ride design, bridge design to avoid or reduce resonance by damping.
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
Week 29 (w/b 24th Apr)	Waves 1. Understand what is meant by the term diffraction 2.Understand the factors that affect the amount of diffraction 3. Describe an experiment to observe diffraction effects 4. Understand what is meant by the term's coherence, path difference and interference 5. Interpret the relationship between phase difference and path difference 6. Explain examples of wave interference	1. Analysing energy in a SHM system 2. Free and forced oscillations 3. Describing the conditions for resonance 4. Investigating resonance 5. Investigating damping 6. Application of damping 7. Using resonance to determine an unknown mass
Key Words Level 2 Level 3	All on Waves NHTW grid	SHM 1-6 NHTW grids
Common Misconceptions	Reviewed in individual feedback sheet	
Homework	Learn selection of defs from NHTW grid related to topic	Revision for in-class test
Assessment this half-term	Term 5 – in-class test (WAV)	In-class test and re-test
Career opportunities Employment Links	LIFE SKILLS: Visualisation in 3-dimensions EMPLOYMENT: Sound engineer, seismologist, seismic geophysicist, Sidescan sonar engineer, construction engineer, bridge or buildings	LIFE SKILLS: Numeracy and literacy EMPLOYMENT: Fairground ride design, bridge design to avoid or reduce resonance by damping.
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
Week 30 (w/b Tues 2nd May)	Waves 1. Understand what is meant by the terms wavefront, superposition and phase 2. Explain nomenclature of phase description (2pi etc) 3.Explain examples of wave superposition 4. Explain what is meant by coherent waves 5. Explain how a standing/stationary wave forms and identify nodes and antinodes Melde's experiment 6. Chladney's plate experiment Reuben's tube	1. Test 2 & 3 Model answers from waves test 4. Retest 5-7 Feedback tasks from test
Key Words Level 2 Level 3	Waves NHTW grid	SHM 1-6 NHTW grids
Common Misconceptions	Usually solved by students learning definitions appropriately	
Homework	Learn appropriately selected defs from NHTW grid	Revision for in-class test
Assessment this half-term	Term 4 – in-class test (EAT SUR WAV HFS)	In-class test and re-test
Career opportunities Employment Links	LIFE SKILLS: Numeracy and literacy EMPLOYMENT: Sound engineer, seismic geophysicist	LIFE SKILLS: Numeracy and literacy EMPLOYMENT: Fairground ride design, bridge design to avoid or reduce resonance by damping.
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

Week 31 (w/b 8th May)	Waves 1. Use the equation for the speed of transverse waves on a string 2. Verify experimentally what factors affect the frequency of standing waves on a string. 3. Waves in an open tube 4. CPAC prep 5.: CPAC Sonometer 6. CPAC complete and tidy up write up	1-7; Readdress missed CPACs
Key Words **Level 2** **Level 3**	NHTW grid Waves	Specific to CPAC
Homework	Revise for term 5 test	Research for CPAC
Assessment this half-term	Term 5 – in-class test (WAV)	In class test and CPAC assessments
Career opportunities Employment Links	LIFE SKILLS: Playing a musical stringed instrument EMPLOYMENT: Musician, sound engineer	LIFE SKILLS: Numeracy and literacy EMPLOYMENT: Fairground ride design, bridge design to avoid or reduce resonance by damping.
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
IT Skills	**IT1 & IT2:** CPAC research and prep	
Week 32 (w/b 15th May)	Waves 1. Understand that lenses focus rays of light (convergent and divergent lenses) 2. Be able to trace the paths of rays using the 2 ray construction through lenses 3. Explain the terms focal length and power of a lens 4. Use the equation for the power of a lens 5. Review unit 6. Waves test	1-7; Readdress missed CPACs
Key Words **Level 2** **Level 3**	Waves NHTW grid	Specific to CPAC
Homework	Waves exam questions	Research for CPAC
Assessment this half-term	Term 5 – in-class test (WAV)	In class test and CPAC assessments
Career opportunities Employment Links	LIFE SKILLS: Understanding of long and short sightedness EMPLOYMENT: Optician, Opthalmic optician, Fibre Optic Cable engineer	LIFE SKILLS: Numeracy and literacy EMPLOYMENT: Fairground ride design, bridge design to avoid or reduce resonance by damping.
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
IT Skills		**IT1 & IT2**: Research for CPAC and write up
Week 33 (w/b 22nd May)	Waves 1. & 2 Model answers from waves test 3. Retest 4 – 6 Feedback tasks from test	1-7; Practise exam papers/questions
Key Words **Level 2** **Level 3**	Waves NHTW grid	Specific to unit
Homework	Waves exam questions	
Assessment this half-term	Term 5 – in-class test (WAV)	In class test and CPAC assessments
Career opportunities Employment Links	LIFE SKILLS: Understanding of long and short sightedness EMPLOYMENT: Optician, Opthalmic optician, Fibre Optic Cable engineer	LIFE SKILLS: Numeracy and literacy EMPLOYMENT: Fairground ride design, bridge design to avoid or reduce resonance by damping.

Employability Skills	Aiming high Communication	Literacy Presenting	Creativity Teamwork	Numeracy Problem solving	Leadership Staying positive	Independence	Listening
Week 34 (w/b 5th Jun)	Waves 1. Trace the paths of rays through lenses to form images 2. Understand the terms real image and virtual image 3. Use the lens formula to calculate image magnification. 4. Understand what is meant by plane polarisation. Know definition. 5. Apply application to exam questions 6. Describe how polarisation can be used with models to investigate stresses in structures						
Key Words **Level 2** **Level 3**	Waves NHTW grid						
Common Misconceptions	Usually solved by students learning definitions appropriately						
Homework	Learn appropriately selected definitions from NHTW grid						
Assessment this half-term	Mock exam						
Career opportunities Employment Links	LIFE SKILLS: Understanding of eyesight defects and how they may be rectified EMPLOYMENT: Optician, Ophthalmic Optician, lighting technician						
Employability Skills	Aiming high Communication	Literacy Presenting	Creativity Teamwork	Numeracy Problem solving	Leadership Staying positive	Independence	Listening
Week 35 (w/b 12th Jun)	Waves 1. Detailed knowledge of the parts of the electromagnetic spectrum, and the frequencies of electromagnetic radiations 2. Models of waves and wave processes 3. The existence and properties of the electron 4. The electronic structure of atoms 5. Macroscopic emission and absorption of light 6. Photons						
Key Words **Level 2** **Level 3**	NHTW grid Particle-Wave duality defs						
Homework	Book questions						
Assessment this half-term	Mock exam						
Career opportunities Employment Links	LIFE SKILLS: An understanding that two theories can co-exist to model two behaviours EMPLOYMENT: Theoretical physicist, alternative technologies physicist – generating electricity via PV cells. Engineer working with photoluminescent screens, Nuclear Physicist						
Employability Skills	Aiming high Communication	Literacy Presenting	Creativity Teamwork	Numeracy Problem solving	Leadership Staying positive	Independence	Listening
Week 36 (w/b 19th Jun)	Waves 1. Explain the photoelectric effect and experimental observations of it 2. Understand how the photoelectric effect provides evidence for the photon model of Light 3. Explain how the Maltese Cross Experiment provides evidence for the electron 4. Use the photoelectric effect equation. 5. Practise exam questions 6. Mini test						
Key Words **Level 2** **Level 3**	NHTW grid – Particle/wave duality defs						
Common Misconceptions	Learn arguments – to avoid sill particle name errors						
Homework	Half Term waves exam questions						

Aiming high Communication	Literacy Presenting	Creativity Teamwork	Numeracy Problem solving	Leadership Staying positive	Independence	Listening	

Assessment this half-term	Mock exam
Career opportunities Employment Links	LIFE SKILLS: An understanding that two theories can co-exist to model two behaviours EMPLOYMENT: Theoretical physicist, alternative technologies physicist – generating electricity via PV cells. Engineer working with photoluminescent screens
Employability Skills	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive
Week 37 (w/b 26th Jun)	<u>Waves</u> 1. Explain how diffraction experiments provide evidence for the wave nature of electrons – Young's double slit experiment 2. Describe other evidence for the wave nature of electrons 3. Be able to use the de Broglie equation 4. Understand atomic line spectra in terms of energy level transitions 5. Calculate the frequency of radiation emitted or absorbed in an electron energy transition. 6. Past paper questions arguing for / against particle or wave nature of light
Key Words Level 2 Level 3	NHTW grid – Particle/wave duality defs
Common Misconceptions	Learn arguments – to avoid sill particle name errors
Homework	Half Term waves exam questions
Assessment this half-term	Mock exam
Career opportunities Employment Links	LIFE SKILLS: An understanding that two theories can co-exist to model two behaviours EMPLOYMENT: Theoretical physicist, alternative technologies physicist – generating electricity via PV cells. Engineer working with photoluminescent screens
Employability Skills	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive
Week 38 (w/b 3rd July)	<u>Waves – CPAC</u> Lesson 1 & 2:_Prepare for CPAC – To find the frequency of a laser Lesson 3 & 4: CPAC Lesson 5 & 6 Write-up – ensure complete
Key Words Level 2 Level 3	In NHTW grid – Particle-wave duality defs
Assessment this half-term	Term 6 – P1 Mock (AS exam) and re-test
Career opportunities Employment Links	LIFE SKILLS: An understanding that two theories can co-exist to model two behaviours EMPLOYMENT: Theoretical physicist, alternative technologies physicist – generating electricity via PV cells. Engineer working with photoluminescent screens, Nuclear Physicist
Employability Skills	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive
IT Skills	**IT1 & IT2**: Research for CPAC and write up
Week 39 (w/b 10th July)	1-7; Readdress earlier missed CPACs
Key Words Level 2 Level 3	Specific to CPAC
Homework	Research for CPAC

Assessment this half-term	In class test and CPAC assessments						
Career opportunities Employment Links	LIFE SKILLS: Numeracy and literacy EMPLOYMENT: Fairground ride design, bridge design to avoid or reduce resonance by damping.						
Employability Skills	Aiming high Communication	Literacy Presenting	Creativity Teamwork	Numeracy Problem solving	Leadership Staying positive	Independence	Listening
IT Skills	**IT1 & IT2**: Research for CPAC and write up						
Week 40 (w/b 17th July)	1-7; Readdress earlier missed CPACs						
Key Words **Level 2** **Level 3**	Specific to CPAC						
Homework	Research for CPAC						
Assessment this half-term	In class test and CPAC assessments						
Career opportunities Employment Links	LIFE SKILLS: Numeracy and literacy EMPLOYMENT: Fairground ride design, bridge design to avoid or reduce resonance by damping.						
Employability Skills	Aiming high Communication	Literacy Presenting	Creativity Teamwork	Numeracy Problem solving	Leadership Staying positive	Independence	Listening
IT Skills	**IT1 & IT2**: Research for CPAC and write up						