Cambridge Assessment International Education

Comparison guide for Cambridge Pre-U Physics 9792

Cambridge Pre-U Physics 9792
Cambridge International AS & A Level Physics 9702
OCR AS/A Level GCE Physics H556 and H557

Introduction

Cambridge International has mapped the assessment objectives, methodology of assessment and topics of Cambridge Pre-U Physics 9792 to Cambridge International AS & A Level Physics 9702 and OCR AS/A Level GCE Physics H556 and H557 syllabuses for examination in 2022. When comparing the topics, the expressions below have been used to give an indication of overlap between the syllabuses:

- Topic coverage is **identical** to the Cambridge Pre-U syllabus.
- Topic coverage is **almost identical**. Slight differences are stated.
- Topic coverage is **similar**. Differences are stated.
- Identical coverage is **limited** compared to the content of Cambridge Pre-U syllabus
- This topic is **not covered** in this syllabus.

Assessment objectives

Cambridge Pre-U	Cambridge International AS & A Level	OCR AS/A Level GCE
Assessment objectives (AOs)		
AO1 Knowledge with understanding • scientific phenomena, facts, laws, definitions, quantities, principles, concepts and theories, and the relationships and models used to explain them • scientific vocabulary, terminology and conventions (including symbols, quantities and units) • scientific instruments, apparatus and methods, and their uses • scientific developments and the methodology used to develop knowledge.	**AO1 Knowledge and understanding** • scientific phenomena, facts, laws, definitions, concepts and theories • scientific vocabulary, terminology and conventions (including symbols, quantities and units) • scientific instruments and apparatus, including techniques of operation and aspects of safety • scientific quantities and their determination • scientific and technological applications with their social, economic and environmental implications.	**AO1 Demonstrate knowledge and understanding of scientific ideas, processes, techniques and procedures.**
AO2 Application of knowledge and problem solving • select, organise, interpret and present scientific information • translate information from one form to another (including manipulating numerical and other data) • analyse scientific information by identifying and explaining patterns and trends, drawing inferences and conclusions, and constructing arguments • evaluate scientific information in terms of validity, accuracy and precision • apply and synthesise scientific skills, knowledge and understanding to solve problems and explain phenomena.	**AO2 Handling, applying and evaluating information** • locate, select, organise and present information from a variety of sources • translate information from one form to another • manipulate numerical and other data • use information to identify patterns, report trends and draw conclusions • give reasoned explanations for phenomena, patterns and relationships • make predictions and construct arguments to support hypotheses • make sense of new situations • evaluate hypotheses • demonstrate an awareness of the limitations of physical theories and models • solve problems.	**AO2 Apply knowledge and understanding of scientific ideas, processes, techniques and procedures:** • in a theoretical context • in a practical context • when handling qualitative data • when handling quantitative data.
AO3 Experimental and investigative skills • research information from secondary sources (including books, journals and the internet) • use scientific apparatus, methods and techniques skilfully and safely	**AO3 Experimental skills and investigations** • plan experiments and investigations • collect, record and present observations, measurements and estimates • analyse and interpret experimental data to reach conclusions	**AO3 Analyse, interpret and evaluate scientific information, ideas and evidence, including in relation to issues, to:** • make judgements and reach conclusions • develop and refine practical design and procedures.

Cambridge Pre-U	Cambridge International AS & A Level	OCR AS/A Level GCE
Assessment objectives (AOs)		
• make, record and communicate observations, measurements and methods methodically with appropriate clarity, precision and accuracy • manipulate, present and analyse raw data provided or from scientific experiments and investigations (including identifying mathematical relationships, where appropriate) • report findings and conclusions, supported by evidence (including secondary sources, where appropriate) • evaluate experimental methods, techniques, raw data and conclusions; identify limitations and suggest improvements.	• evaluate methods and quality of experimental data, and suggest improvements to experiments.	

Methodology of assessment

Cambridge Pre-U	Cambridge International AS & A Level	OCR AS/A Level GCE
Assessment		
• Paper 1 – 1 hour 30 minutes • Paper 2 – 2 hours • Paper 3 – 3 hours • Component 4: Personal investigation – 20 hours (planning, practical and written report), internally marked and externally moderated All other components are externally assessed	**AS Level** • Paper 1 – 1 hour 15 minutes • Paper 2 – 1 hour 15 minutes • Paper 3 – 2 hours (practical0 **A Level** • Paper 1 – 1 hour 15 minutes • Paper 2 – 1 hour 15 minutes • Paper 3 – 2 hours (practical) • Paper 4 – 2 hours • Paper 5 – 1 hour 15 minutes All components are externally assessed	**AS Level** • Component 1 – 1 hour 30 minutes • Component 2 – 1 hour 30 minutes **A Level** • Component 1 – 2 hours 15 minutes • Component 2 – 2 hours 15 minutes • Component 3 – 1 hour 30 minutes • Component 4 – non-exam internal assessment All other components externally assessed

Topics

Cambridge Pre-U	Cambridge International AS & A Level	OCR AS/A Level GCE (Physics A)	OCR AS/A Level GCE (Physics B)
Topics			
1.1 Scalars and Vectors	Topic coverage is identical to the Cambridge Pre-U syllabus.	Topic coverage is identical to the Cambridge Pre-U syllabus.	Topic coverage is similar, but this syllabus does not include the distinction between scalar and vector quantities.
1.2 Moment of a Force	Topic coverage is identical to the Cambridge Pre-U syllabus.	Topic coverage is identical to the Cambridge Pre-U syllabus.	This topic is not covered in this syllabus.
1.3 Kinematics	Topic coverage is identical to the Cambridge Pre-U syllabus.	Topic coverage is identical to the Cambridge Pre-U syllabus.	Topic coverage is similar. This syllabus does not require appreciation of the significance of the gradients of displacement-time and velocity-time graphs, and contains no treatment of projectile motion.
1.4 Newton's Laws of Motion	Topic coverage is similar. This syllabus does not distinguish between kinetic and static friction and provides no treatment of the relationship between friction and normal contact forces through the notion of the coefficient of friction.	Topic coverage is similar. This syllabus does not distinguish between kinetic and static friction and provides no treatment of the relationship between friction and normal contact forces through the notion of the coefficient of friction.	Topic coverage is similar. This syllabus does not distinguish between kinetic and static friction and provides no treatment of the relationship between friction and normal contact forces through the notion of the coefficient of friction.
1.5 Conservation of Linear Momentum	Topic coverage is similar. This syllabus does not include the concept of impulse or the significance of the area under the force-time graph in representing the impulse.	Topic coverage is identical to the Cambridge Pre-U syllabus.	Topic coverage is similar. This syllabus does not require recall of the definition of momentum, and does not include the distinction between elastic and inelastic collisions.
1.6 Density	Topic coverage is identical to the Cambridge Pre-U syllabus.	Topic coverage is identical to the Cambridge Pre-U syllabus.	This topic is not covered in this syllabus.

Cambridge Pre-U	Cambridge International AS & A Level	OCR AS/A Level GCE (Physics A)	OCR AS/A Level GCE (Physics B)
Topics			
1.7 Pressure	Topic coverage is almost identical, apart from the fact that this syllabus does not require candidates to recall the hydrostatic pressure formula.	Topic coverage is identical to the Cambridge Pre-U syllabus.	This topic is not covered in this syllabus.
2.1 Gravitational Field Strength	Topic coverage is almost identical, apart from the fact that this syllabus does not include the requirement to explain that the concept of a field has independent properties.	Topic coverage is almost identical, apart from the fact that this syllabus does not include the requirement to explain that the concept of a field has independent properties.	Topic coverage is almost identical, apart from the fact that this syllabus does not include the requirement to explain that the concept of a field has independent properties.
2.2 Centre of Gravity	Topic coverage is identical to the Cambridge Pre-U syllabus.	Topic coverage is identical to the Cambridge Pre-U syllabus.	This topic is not covered in this syllabus.
3.1 Elastic and Plastic Behaviour	Identical coverage is limited compared with the Cambridge Pre-U syllabus.	Topic coverage is similar. This syllabus does not require knowledge of the terms hard, malleable, soft, strong and tough.	Topic coverage is identical to the Cambridge Pre-U syllabus.
3.2 Stress and Strain	Identical coverage is limited compared with the Cambridge Pre-U syllabus.	Topic coverage is similar. This syllabus does not require knowledge of the terms stiffness, yield point, breaking stress and breaking strain. It also has no requirement for explanation of the shape of stress-strain graphs in terms of microstructure.	Topic coverage is identical to the Cambridge Pre-U syllabus.
4.1 Work	Identical coverage is limited compared with the Cambridge Pre-U syllabus.	Identical coverage is limited compared with the Cambridge Pre-U syllabus.	Identical coverage is limited compared with the Cambridge Pre-U syllabus.
4.2 Power	Topic coverage is almost identical, apart from the fact that this syllabus does not require candidates to recall the equation $P = Fv$.	Topic coverage is identical to the Cambridge Pre-U syllabus.	Topic coverage is almost identical, apart from the fact that this syllabus does not require candidates to recall the equation $P = Fv$.
4.3 Potential and Kinetic Energy	Topic coverage is almost identical, apart from the fact that this syllabus does not require knowledge of $g\Delta h$ as the change in gravitational potential.	Topic coverage is almost identical, apart from the fact that this syllabus does not require knowledge of $g\Delta h$ as the change in gravitational potential.	Topic coverage is similar. This syllabus does not require the derivation of the equation $E = ½ mv^2$. It does not require candidates to know $E = ½ kx^2$. It also does not

Cambridge Pre-U	Cambridge International AS & A Level	OCR AS/A Level GCE (Physics A)	OCR AS/A Level GCE (Physics B)
Topics			
			require knowledge of $g\Delta h$ as the change in gravitational potential.
4.4 Energy Conversion and Conservation	Topic coverage is identical to the Cambridge Pre-U syllabus.	Topic coverage is identical to the Cambridge Pre-U syllabus.	Topic coverage is similar, but this syllabus does not require any appreciation of the efficiency of energy conversion.
4.5 Specific Latent Heat	Topic coverage is identical to the Cambridge Pre-U syllabus.	Topic coverage is identical to the Cambridge Pre-U syllabus.	This topic is not covered in this syllabus.
4.6 Specific Heat Capacity	Topic coverage is identical to the Cambridge Pre-U syllabus.	Topic coverage is identical to the Cambridge Pre-U syllabus.	Topic coverage is identical to the Cambridge Pre-U syllabus.
5.1 Electric Current	Topic coverage is identical to the Cambridge Pre-U syllabus.	Topic coverage is identical to the Cambridge Pre-U syllabus.	Topic coverage is almost identical, apart from the fact that this syllabus does not require candidates to know that current is the rate of flow of charge.
5.2 Potential Difference and Electromotive Force	Topic coverage is similar. This syllabus does not require explicit knowledge of the internal resistance equations, although ability to derive them is implied by other parts of the syllabus. This syllabus does not require the derivation of $P = VI$ and $P = I^2R$.	Topic coverage is almost identical, apart from the fact that this syllabus does not require derivation of the internal resistance equations or of $P = VI$ and $P = I^2R$.	Topic coverage is similar. The concepts involved are all contained in this syllabus, but it does not require recall or derivation of any of the relevant equations.
5.3 Resistance and Resistivity	Topic coverage is almost identical, with the exception that this syllabus does not require candidates to recall the resistor combination equations.	Topic coverage is identical to the Cambridge Pre-U syllabus.	Topic coverage is similar. This syllabus does not require candidates to know the equation connecting resistance and resistivity or the equations for series and parallel resistance combinations.
5.4 Conservation of Charge and Energy	Topic coverage is identical to the Cambridge Pre-U syllabus.	Topic coverage is identical to the Cambridge Pre-U syllabus.	Topic coverage is identical to the Cambridge Pre-U syllabus.

Cambridge Pre-U	Cambridge International AS & A Level	OCR AS/A Level GCE (Physics A)	OCR AS/A Level GCE (Physics B)
Topics			
6.1 Progressive Waves	Topic coverage is identical to the Cambridge Pre-U syllabus.	Topic coverage is identical to the Cambridge Pre-U syllabus.	Topic coverage is similar. This syllabus does not require knowledge of the concept of intensity, and also does not require candidates to know the equation relating period to frequency.
6.2 Longitudinal and Transverse Waves	Topic coverage is almost identical, with the exception that this syllabus does not require an understanding of pressure variation in sound waves.	Topic coverage is almost identical, with the exception that this syllabus does not require an understanding of pressure variation in sound waves.	This topic is not covered in this syllabus.
6.3 Electromagnetic Spectrum	Topic coverage is identical to the Cambridge Pre-U syllabus.	Topic coverage is identical to the Cambridge Pre-U syllabus.	This topic is not covered in this syllabus.
6.4 Polarisation	Topic coverage is identical to the Cambridge Pre-U syllabus.	Identical coverage is limited compared with the Cambridge Pre-U syllabus. Whilst this syllabus does contain a qualitative treatment of polarisation, it does not require the use of Malus' law for quantitative analysis.	Identical coverage is limited compared with the Cambridge Pre-U syllabus. Whilst this syllabus does contain a qualitative treatment of polarisation, it does not require the use of Malus' law for quantitative analysis.
6.5 Refraction	This topic is not covered in this syllabus.	Topic coverage is similar. This syllabus does not require the derivation of $\sin C = 1/n$, and does not require knowledge of optical fibres.	Identical coverage is limited compared with the Cambridge Pre-U syllabus.
7.1 Phase Difference	Topic coverage is similar. This syllabus makes no explicit reference to the concept of path difference and does not include an understanding of the origin of phase difference.	Topic coverage almost identical. This syllabus does not include an understanding of the origin of phase difference.	Topic coverage almost identical. This syllabus does not include an understanding of the origin of phase difference.
7.2 Diffraction	Identical coverage is limited compared with the Cambridge Pre-U syllabus.	Identical coverage is limited compared with the Cambridge Pre-U syllabus.	Identical coverage is limited compared with the Cambridge Pre-U syllabus.
7.3 Interference	Topic coverage is almost identical, apart from the fact that this syllabus does not require knowledge of phasor diagrams.	Topic coverage is almost identical, apart from the fact that this syllabus does not require knowledge of phasor diagrams	Topic coverage is identical to the Cambridge Pre-U syllabus.

Cambridge Pre-U	Cambridge International AS & A Level	OCR AS/A Level GCE (Physics A)	OCR AS/A Level GCE (Physics B)
Topics			
7.4 Standing Waves	Topic coverage is similar, but this syllabus does not require any knowledge of the formation of complex waves.	Topic coverage is similar, but this syllabus does not require an understanding of how standing waves are formed or any knowledge of the formation of complex waves.	Topic coverage is similar, but this syllabus does not require knowledge of nodes and antinodes. It also does not require any knowledge of the formation of complex waves.
8.1 The Nucleus	Topic coverage is identical to the Cambridge Pre-U syllabus.	Topic coverage is identical to the Cambridge Pre-U syllabus.	Topic coverage is identical to the Cambridge Pre-U syllabus.
8.2 Nuclear Processes	Topic coverage is almost identical. This syllabus does not include the origins of background radiation or the ionising and penetrating properties of α, β^- and γ radiation.	Topic coverage is almost identical. This syllabus does not include the origins of background radiation or the ionising properties of α, β^- and γ radiation.	Topic coverage is identical to the Cambridge Pre-U syllabus.
8.3 Probability and Radioactive Decay	Topic coverage is almost identical, apart from the fact that this syllabus does not require an understanding of the link between the random nature of decay and the exponential nature of the decay equation.	Topic coverage is almost identical, apart from the fact that this syllabus does not require an understanding of the link between the random nature of decay and the exponential nature of the decay equation.	Topic coverage is almost identical, apart from the fact that this syllabus does not require an understanding of the spontaneous nature of radioactive decay.
8.4 Fission and Fusion	Topic coverage is almost identical. This syllabus does not include knowledge of chain reactions.	Topic coverage is identical to the Cambridge Pre-U syllabus.	Topic coverage is identical to the Cambridge Pre-U syllabus.
9.1 The Photoelectric Effect	Topic coverage is almost identical, apart from the fact that this syllabus does not include awareness of the use of stopping potentials in the photoelectric effect.	Topic coverage is identical to the Cambridge Pre-U syllabus.	Identical coverage is limited compared with the Cambridge Pre-U syllabus.
9.2 The Photon	Topic coverage is identical to the Cambridge Pre-U syllabus.	Topic coverage is identical to the Cambridge Pre-U syllabus.	Topic coverage is almost identical, apart from the fact that this syllabus does not require candidates to know the equation $E = hf$.
9.3 Wave-Particle Duality	Topic coverage is identical to the Cambridge Pre-U syllabus.	Topic coverage is identical to the Cambridge Pre-U syllabus.	Topic coverage is identical to the Cambridge Pre-U syllabus.

Cambridge Pre-U	Cambridge International AS & A Level	OCR AS/A Level GCE (Physics A)	OCR AS/A Level GCE (Physics B)
Topics			
10.1 Kinematics of Uniform Circular Motion	Topic coverage is identical to the Cambridge Pre-U syllabus.	Topic coverage is identical to the Cambridge Pre-U syllabus.	Identical coverage is limited compared with the Cambridge Pre-U syllabus.
10.2 Centripetal Acceleration	Topic coverage is almost identical, apart from the fact that this syllabus does not require derivation of the centripetal acceleration equations.	Topic coverage is almost identical, apart from the fact that this syllabus does not require derivation of the centripetal acceleration equations.	Topic coverage is similar but does not require candidates to know or be able to derive any of the relevant equations.
10.3 Moment of Inertia	This topic is not covered in this syllabus.	This topic is not covered in this syllabus.	This topic is not covered in this syllabus.
10.4 Kinematics of Rotational Motion	This topic is not covered in this syllabus.	This topic is not covered in this syllabus.	This topic is not covered in this syllabus.
11.1 Simple Harmonic Motion	Identical coverage is limited compared with the Cambridge Pre-U syllabus.	Identical coverage is limited compared with the Cambridge Pre-U syllabus.	Topic coverage is similar. This syllabus does not require candidates to be able to identify situations in which s.h.m. will occur, and it does not require the use of differential calculus for solution of the defining equation.
11.2 Energy in Simple Harmonic Motion	Topic coverage is similar, but this syllabus does not require derivation of the equation $E = ½ mA^2\omega$.	Identical coverage is limited compared with the Cambridge Pre-U syllabus.	Identical coverage is limited compared with the Cambridge Pre-U syllabus.
11.3 Forced Oscillations, Damping and Resonance	Identical coverage is limited compared with the Cambridge Pre-U syllabus.	Topic coverage is similar. This syllabus does not require knowledge of the three different types of damping.	Topic coverage is similar. This syllabus does not require knowledge of the three different types of damping.
12.1 Concept of an Electric Field	Topic coverage is identical to the Cambridge Pre-U syllabus.	Topic coverage is identical to the Cambridge Pre-U syllabus.	Topic coverage is almost identical, but this syllabus does not require recall of the defining equation of electric field.
12.2 Uniform Electric Fields	Topic coverage is almost identical. This syllabus does not require the derivation of $E = V/d$.	Topic coverage is almost identical. This syllabus does not require the derivation of $E = V/d$.	Topic coverage is almost identical. This syllabus does not require the derivation of $E = V/d$.

Cambridge Pre-U	Cambridge International AS & A Level	OCR AS/A Level GCE (Physics A)	OCR AS/A Level GCE (Physics B)
Topics			
12.3 Capacitance	Topic coverage is almost identical. This syllabus does not require the definition of time constant.	Topic coverage is almost identical. This syllabus does not require the definition of time constant.	Topic coverage is similar. This syllabus does not require recall of the defining equation for capacitance or derivation of the equations for the energy stored in a capacitor. It also does not require the definition of time constant.
12.4 Electric Potential	Topic coverage is similar, although this syllabus does not require knowledge of equipotentials.	Topic coverage is similar, although this syllabus does not require knowledge of equipotentials or the equivalence of electric field strength with electric potential gradient.	Topic coverage is identical to the Cambridge Pre-U syllabus.
12.5 Electric Field of a Point Charge	Topic coverage is similar. This syllabus does not require the derivation of the field due to a point charge or of the energy stored between two point charges.	Topic coverage is similar. This syllabus does not require the derivation of the field due to a point charge or of the energy stored between two point charges.	Topic coverage is similar. This syllabus does not require the derivation of the field due to a point charge or of the energy stored between two point charges
13.1 Kepler's Laws	This topic is not covered in this syllabus.	Topic coverage is identical to the Cambridge Pre-U syllabus.	This topic is not covered in this syllabus.
13.2 Newton's Law of Gravity	Topic coverage is almost identical. Proof of Kepler's relationship $T^2 \propto r^3$ is possible from the knowledge specified in this syllabus but is not an explicit requirement of it.	Topic coverage is identical to the Cambridge Pre-U syllabus.	Topic coverage is almost identical. Proof of Kepler's relationship $T^2 \propto r^3$ is possible from the knowledge specified in this syllabus but is not an explicit requirement of it.
13.3 Gravitational Field	Topic coverage is almost identical, but this syllabus does not require a comparison between gravitational and electric fields.	Topic coverage is almost identical, but this syllabus does not require derivation of the equation for the field due to a point mass.	Topic coverage is almost identical, but this syllabus does not require derivation of the equation for the field due to a point mass.
13.4 Gravitational Potential Energy	Topic coverage is similar. This syllabus does not require analysis of the area under a force-distance graph. Calculation of escape velocities and height of geostationary orbits is possible from the knowledge specified in the syllabus, but is not an explicit requirement of it.	Topic coverage is almost identical. Whilst possible from knowledge that is in the syllabus, this syllabus does not explicitly require calculation of the height of a geostationary orbit.	Topic coverage is similar. Calculation of escape velocities and height of geostationary orbits is possible from the knowledge specified in this syllabus, but is not an explicit requirement of it.

Cambridge Pre-U	Cambridge International AS & A Level	OCR AS/A Level GCE (Physics A)	OCR AS/A Level GCE (Physics B)
Topics			
14.1 Concept of a Magnetic Field	Topic coverage is identical to the Cambridge Pre-U syllabus.	Topic coverage is identical to the Cambridge Pre-U syllabus.	Topic coverage is similar. This syllabus does not include the magnetic effect of an electric current.
14.2 Force on a Current-Carrying Conductor	Topic coverage is identical to the Cambridge Pre-U syllabus.	Topic coverage is identical to the Cambridge Pre-U syllabus.	Topic coverage is similar. This syllabus confines quantitative treatment to situations where the current-carrying wire is perpendicular to the field, and does not require prediction of direction of the force.
14.3 Force on a Moving Charge	Topic coverage is almost identical. Deduction of the expression for the radius of curvature of a charged particle moving in a uniform magnetic field is possible from knowledge specified in the syllabus but is not an explicit requirement of it.	Topic coverage is similar. This syllabus only requires knowledge of F = BQv for motion perpendicular to the field. Deduction of the expression for the radius of curvature of a charged particle moving in a uniform magnetic field is possible from knowledge specified in the syllabus but is not an explicit requirement of it.	Topic coverage is similar. This syllabus only requires knowledge of F = BQv for motion perpendicular to the field. Deduction of the expression for the radius of curvature of a charged particle moving in a uniform magnetic field is possible from knowledge specified in the syllabus but is not an explicit requirement of it.
14.4 Electromagnetic Induction	Topic coverage is almost identical, although the equation $E = -\mathrm{d}(N\Phi)/\mathrm{d}t$ as an algebraic expression of the laws of EM induction is not required by this syllabus.	Topic coverage is identical to the Cambridge Pre-U syllabus.	Topic coverage is similar. This syllabus includes the equation $E = -\mathrm{d}(N\Phi)/\mathrm{d}t$, but not Faraday's law or Lenz' law.
14.5 The Hall Effect	Topic coverage is identical to the Cambridge Pre-U syllabus.	This topic is not covered in this syllabus.	This topic is not covered in this syllabus.
15.1 Einstein's Special Principle of Relativity	This topic is not covered in this syllabus.	This topic is not covered in this syllabus.	This topic is not covered in this syllabus.
15.2 Time Dilation	This topic is not covered in this syllabus.	This topic is not covered in this syllabus.	Identical coverage is limited compared with the Cambridge Pre-U syllabus.

Cambridge Pre-U	Cambridge International AS & A Level	OCR AS/A Level GCE (Physics A)	OCR AS/A Level GCE (Physics B)
Topics			
15.3 Length Contraction	This topic is not covered in this syllabus.	This topic is not covered in this syllabus.	This topic is not covered in this syllabus.
16.1 Absolute Scale of Temperature	Topic coverage is almost identical, apart from the fact that this syllabus does not require knowledge of the empirical evidence for the gas laws.	Topic coverage is identical to the Cambridge Pre-U syllabus.	This topic is not covered in this syllabus.
16.2 Equation of State	Topic coverage is identical to the Cambridge Pre-U syllabus.	Topic coverage is identical to the Cambridge Pre-U syllabus.	Topic coverage is almost identical, apart from the fact that this syllabus does not require recall of $pV = nRT$.
16.3 Kinetic Theory of Gases	Topic coverage is similar. This syllabus does not require knowledge of Brownian motion as evidence for the kinetic theory, and it does not require an appreciation of the conditions under which the assumptions of the kinetic theory break down.	Topic coverage is almost identical, apart from the fact that this syllabus does not require an appreciation of the conditions under which the assumptions of the kinetic theory break down.	Topic coverage is similar. This syllabus does not require knowledge of Brownian motion as evidence for the kinetic theory, and it does not require an appreciation of the conditions under which the assumptions of the kinetic theory break down.
16.4 Kinetic Energy of a Molecule	Topic coverage is almost identical. This syllabus does not make the explicit link explaining macroscopic observations in terms of microscopic particle behaviour.	Topic coverage is similar. This syllabus does not make the explicit link explaining macroscopic observations in terms of microscopic particle behaviour. It also does not require the derivation of $pV = 1/3\ Nm\langle c^2 \rangle$.	Topic coverage is almost identical. This syllabus does not require the derivation of $pV = 1/3\ Nm\langle c^2 \rangle$.
16.5 First Law of Thermodynamics	Topic coverage is identical to the Cambridge Pre-U syllabus.	This topic is not covered in this syllabus.	This topic is not covered in this syllabus.
16.6 Entropy	This topic is not covered in this syllabus.	This topic is not covered in this syllabus.	This topic is not covered in this syllabus.
16.7 Second Law of Thermodynamics	This topic is not covered in this syllabus.	This topic is not covered in this syllabus.	This topic is not covered in this syllabus.

Cambridge Pre-U	Cambridge International AS & A Level	OCR AS/A Level GCE (Physics A)	OCR AS/A Level GCE (Physics B)
Topics			
17.1 Equations of Radioactive Decay	Topic coverage is similar. This syllabus does not require an understanding of the link between the random nature of decay and the differential equation $dN/dt = -\lambda N$. It also doesn't require the ability to derive the exponential decay equations by solving the differential equation. This syllabus does not require the derivation of $t_{½} = \ln 2 / \lambda$. Finally, it does not require application of the inverse square law to the propagation of ionising radiation or the calculation of the size of a nucleus from distance of closest approach.	Topic coverage is similar. This syllabus does not require an understanding of the link between the random nature of decay and the differential equation $dN/dt = -\lambda N$. It also doesn't require the ability to derive the exponential decay equations by solving the differential equation. This syllabus does not require the derivation of $t_{½} = \ln 2 / \lambda$. Finally, it does not require application of the inverse square law to the propagation of ionising radiation or the calculation of the size of a nucleus from distance of closest approach.	Topic coverage is almost identical. This syllabus does not require the derivation of $t_{½} = \ln 2 / \lambda$. It also does not require application of the inverse square law to the propagation of ionising radiation or the calculation of the size of a nucleus from distance of closest approach.
17.2 Mass Excess and Nuclear Binding Energy	Topic coverage is identical to the Cambridge Pre-U syllabus.	Topic coverage is identical to the Cambridge Pre-U syllabus.	Topic coverage is identical to the Cambridge Pre-U syllabus.
17.3 Antimatter	Topic coverage is almost identical, except this syllabus does not require an understanding of spin.	Topic coverage is almost identical, except this syllabus does not require an understanding of spin.	Topic coverage is similar. This syllabus does not require an understanding of spin and contains no treatment of pair annihilation.
17.4 The Standard Model	Topic coverage is similar. This syllabus does not require understanding that the existence of the antineutrino was predicted by conservation laws. It also does not require any knowledge of force carriers as a category of fundamental particle, and does not require knowledge of the quantities lepton number and baryon number.	Topic coverage is similar. This syllabus does not require understanding that the existence of the antineutrino was predicted by conservation laws. It also does not require knowledge of the term 'baryon', does not require any knowledge of force carriers as a category of fundamental particle, and does not require knowledge of the quantities lepton number and baryon number.	Topic coverage is almost identical. This syllabus does not require understanding that the existence of the antineutrino was predicted by conservation laws. It also does not require knowledge of the term 'baryon' or the quantity baryon number.

Cambridge Pre-U	Cambridge International AS & A Level	OCR AS/A Level GCE (Physics A)	OCR AS/A Level GCE (Physics B)
Topics			
18.1 Line Spectra	Topic coverage is identical to the Cambridge Pre-U syllabus.	Topic coverage is identical to the Cambridge Pre-U syllabus.	Identical coverage is limited compared with the Cambridge Pre-U syllabus.
18.2 Energy Levels in the Hydrogen Atom	This topic is not covered in this syllabus.	This topic is not covered in this syllabus.	This topic is not covered in this syllabus.
19.1 Interpretations of the Double-Slit Experiment	This topic is not covered in this syllabus.	This topic is not covered in this syllabus.	This topic is not covered in this syllabus.
19.2 Schrodinger's Cat Paradox	This topic is not covered in this syllabus.	This topic is not covered in this syllabus.	This topic is not covered in this syllabus.
19.3 The Heisenberg Uncertainty Principle	This topic is not covered in this syllabus.	This topic is not covered in this syllabus.	This topic is not covered in this syllabus.
20.1 Standard Candles	Topic coverage is identical to the Cambridge Pre-U syllabus.	This topic is not covered in this syllabus.	This topic is not covered in this syllabus.
20.2 Stellar Radii	Topic coverage is identical to the Cambridge Pre-U syllabus.	Topic coverage is identical to the Cambridge Pre-U syllabus.	This topic is not covered in this syllabus.
20.3 Hubble's Law	Topic coverage is identical to the Cambridge Pre-U syllabus.	Topic coverage is identical to the Cambridge Pre-U syllabus.	This topic is not covered in this syllabus.
20.4 The Big Bang Theory	Topic coverage is similar. This syllabus does not require knowledge of microwave background radiation or an understanding of the expansion of space-time.	Topic coverage is identical to the Cambridge Pre-U syllabus.	Identical coverage is limited compared with the Cambridge Pre-U syllabus.

Cambridge Pre-U	Cambridge International AS & A Level	OCR AS/A Level GCE (Physics A)	OCR AS/A Level GCE (Physics B)
Topics			
20.5 The Age of the Universe	This topic is not covered in this syllabus.	Topic coverage is identical to the Cambridge Pre-U syllabus.	This topic is not covered in this syllabus.