
AS AND A LEVEL PHYSICS

Switching from OCR A to Edexcel

This document is designed to help you compare the existing 2008 OCR Physics A specification (H158 / H558) with the new 2015 Edexcel Physics specification.

The document gives an overview, at the topic level, of where the material covered in the existing OCR Physics A specification can be found in the new Edexcel Physics specification. The following tables then give a more detailed breakdown of the Edexcel specification, and highlights areas of difference. These will help you see where material that you currently teach in the OCR specification is not present in the Edexcel specification; or where the Edexcel specification incorporates material that is new to you.

As a general overview, the 2015 Edexcel Physics specification is split into a number of topics. At AS, these topics are: Working as a Physicist, Mechanics, Electric Circuits, Materials and Waves & the Particle Nature of Light. In the second year of the A level, the topics are: Further Mechanics, Electric & Magnetic Fields, Nuclear & Particle Physics, Thermodynamics, Space, Nuclear Radiation, Gravitational Fields and Oscillations.

The course can also be taught using a context-led form approach, as exemplified by the Salters Horners (SHAP) approach. This approach considers applications that draw on areas of physics, and moves on to the underlying laws, theories and models of physics. Both the SHAP approach and the concept approach to the specification involve the same specification statements at AS and A level, but the SHAP approach groups these statements into topics a different way.

As well as great physics within the specification, there are other ways in which we can help support your teaching on our new A level Physics specification. Our free support includes:

- additional sets of question papers
- Results Plus, now with Mock Analysis service
- Exam Wizard, our online bank of past paper questions
- Getting Started Guides, with course planners
- "Getting Ready to Teach" events
- documents to help deliver the mathematics and practical aspects of the specification
- worksheets for each "core practical" in the specification

Overview of content

OCR A (2008)	Edexcel Physics (2015)
AS Unit G481: <i>Mechanics</i> – Module 1: Motion 1.1.1 Physical quantities and units	Mostly covered through Topic 1: Working as a Physicist
AS Unit G481: <i>Mechanics</i> – Module 1: Motion 1.1.2 Scalars & vectors	Topic 2: Mechanics Spec ref(s): 12, 13 and 14
AS Unit G481: <i>Mechanics</i> – Module 1: Motion 1.1.3 Kinematics	Topic 2: Mechanics Spec ref(s): 10 and 11
AS Unit G481: <i>Mechanics</i> – Module 1: Motion 1.1.4 Linear motion	Topic 2: Mechanics Spec ref(s): 9
AS Unit G481: <i>Mechanics</i> – Module 2: Forces in action 1.2.1 Force	Topic 2: Mechanics Spec ref(s): 17
AS Unit G481: <i>Mechanics</i> – Module 2: Forces in action 1.2.2 Nonlinear motion	Topic 2: Mechanics Spec ref(s): 18 and 19
AS Unit G481: <i>Mechanics</i> – Module 2: Forces in action 1.2.3 Equilibrium	Topic 2: Mechanics Spec ref(s): 23 and 24 Topic 4: Materials Spec ref(s): 49,
AS Unit G481: <i>Mechanics</i> – Module 2: Forces in action 1.2.4 Car safety	Not covered in the Edexcel specification
AS Unit G481: <i>Mechanics</i> – Module 3: Work & energy 1.3.1 Work & conservation of energy	Topic 2: Mechanics Spec ref(s): 25 and 28
AS Unit G481: <i>Mechanics</i> – Module 3: Work & energy 1.3.2 Kinetic & potential energies	Topic 2: Mechanics Spec ref(s): 26 and 27
AS Unit G481: <i>Mechanics</i> – Module 3: Work & energy 1.3.3 Power	Topic 2: Mechanics Spec ref(s): 29 and 30
AS Unit G481: <i>Mechanics</i> – Module 3: Work & energy 1.3.4 Behaviour of springs and materials	Topic 4: Materials Spec ref(s): 53, 54, 56, 57 and 58

AS Unit G482: <i>Electrons, Waves & Photons</i> – Module 1: Electric current 2.1.1 Charge and current	Topic 3: Electric circuits Spec ref(s): 31 and 34
AS Unit G482: <i>Electrons, Waves & Photons</i> – Module 2: Resistance 2.2.1 Circuit symbols	Included as an Appendix for use within Topic 3: Electric circuits
AS Unit G482: <i>Electrons, Waves & Photons</i> – Module 2: Resistance 2.2.2 E.m.f. and p.d.	Topic 3: Electric circuits Spec ref(s): 32, 45 and 46
AS Unit G482: <i>Electrons, Waves & Photons</i> – Module 2: Resistance 2.2.3 Resistance	Topic 3: Electric circuits Spec ref(s): 33 and 38
AS Unit G482: <i>Electrons, Waves & Photons</i> – Module 2: Resistance 2.2.4 Resistivity	Topic 3: Electric circuits Spec ref(s): 39, 40 and 47
AS Unit G482: <i>Electrons, Waves & Photons</i> – Module 2: Resistance 2.2.5 Power	Topic 3: Electric circuits Spec ref(s): 37
AS Unit G482: <i>Electrons, Waves & Photons</i> – Module 3: DC circuits 2.3.1 Series & parallel circuits	Topic 3: Electric circuits Spec ref(s): 34, 35, 36 and 45
AS Unit G482: <i>Electrons, Waves & Photons</i> – Module 3: DC circuits 2.3.2 Practical circuits	Topic 3: Electric circuits Spec ref(s): 42, 43 and 44
AS Unit G482: <i>Electrons, Waves & Photons</i> – Module 4: Waves 2.4.1 Wave motion	Topic 5: Waves and particle nature of light Spec ref(s): 59, 60, 61, 62, 83 and 88
AS Unit G482: <i>Electrons, Waves & Photons</i> – Module 4: Waves 2.4.2 Electromagnetic waves	Topic 5: Waves and particle nature of light Spec ref(s): 82 and 90
AS Unit G482: <i>Electrons, Waves & Photons</i> – Module 4: Waves 2.4.3 Interference	Topic 5: Waves and particle nature of light Spec ref(s): 65, 66, 70 and 84
AS Unit G482: <i>Electrons, Waves & Photons</i> – Module 4: Waves 2.4.4 Stationary waves	Topic 5: Waves and particle nature of light Spec ref(s): 63 and 67
AS Unit G482: <i>Electrons, Waves & Photons</i> – Module 5: Quantum physics 2.5.1 Energy of a photon	Topic 5: Waves and particle nature of light Spec ref(s): 91 and 94
AS Unit G482: <i>Electrons, Waves & Photons</i> – Module 5: Quantum physics 2.5.2 The photoelectric effect	Topic 5: Waves and particle nature of light Spec ref(s): 92, 93 and 95
AS Unit G482: <i>Electrons, Waves & Photons</i> – Module 5: Quantum physics 2.5.3 The wave particle duality	Topic 5: Waves and particle nature of light Spec ref(s): 86 and 87
AS Unit G482: <i>Electrons, Waves & Photons</i> – Module 5: Quantum physics 2.5.4 Energy levels in atoms	Topic 5: Waves and particle nature of light Spec ref(s): 96

A2 Unit G484: <i>The Newtonian World</i> – Module 1: Newton’s laws of motion 4.1.1 Newton’s laws of motion	Topic 2: Mechanics Spec ref(s): 20 and 21 Topic 6: Further mechanics Spec ref(s): 97
A2 Unit G484: <i>The Newtonian World</i> – Module 1: Newton’s laws of motion 4.1.2 Collisions	Topic 2: Mechanics Spec ref(s): 22 Topic 6: Further mechanics Spec ref(s): 98 and 101
A2 Unit G484: <i>The Newtonian World</i> – Module 2: Circular motion & oscillations 4.2.1 Circular motion	Topic 6: Further mechanics Spec ref(s): 103, 104, 105, 106 and 107
A2 Unit G484: <i>The Newtonian World</i> – Module 2: Circular motion & oscillations 4.2.2 Gravitational fields	Topic 12: Gravitational fields Spec ref(s): 174, 175, 176 and 177
A2 Unit G484: <i>The Newtonian World</i> – Module 2: Circular motion & oscillations 4.2.3 Simple harmonic oscillations	Topic 13: Oscillations Spec ref(s): 181, 182, 183, 184, 185, 186, 188, 189, 190 and 191
A2 Unit G484: <i>The Newtonian World</i> – Module 3: Thermal physics 4.3.1 Solid, liquid & gas	Topic 9: Thermodynamics Spec ref(s): 147
A2 Unit G484: <i>The Newtonian World</i> – Module 3: Thermal physics 4.3.2 Temperature	Topic 9: Thermodynamics Spec ref(s): 148
A2 Unit G484: <i>The Newtonian World</i> – Module 3: Thermal physics 4.3.3 Thermal properties of materials	Topic 9: Thermodynamics Spec ref(s): 144
A2 Unit G484: <i>The Newtonian World</i> – Module 3: Thermal physics 4.3.4 Ideal gases	Topic 9: Thermodynamics Spec ref(s): 149, 150 and 152

A2 Unit G485: <i>Fields, Particles & Frontiers of Physics</i> - Module 1: Electric & magnetic fields 5.1.1 Electric fields	Topic 7: Electric and magnetic fields Spec ref(s): 109, 110, 111, 113 and 115
A2 Unit G485: <i>Fields, Particles & Frontiers of Physics</i> - Module 1: Electric & magnetic fields 5.1.2 Magnetic fields	Topic 7: Electric and magnetic fields Spec ref(s): 122 and 123
A2 Unit G485: <i>Fields, Particles & Frontiers of Physics</i> - Module 1: Electric & magnetic fields 5.1.3 Electromagnetism	Topic 7: Electric and magnetic fields Spec ref(s): 121, 124, 125, 126 and 127
A2 Unit G485: <i>Fields, Particles & Frontiers of Physics</i> - Module 2: Capacitors & exponential decay 5.2.1 Capacitors	Topic 7: Electric and magnetic fields Spec ref(s): 1116, 117, 118 and 120
A2 Unit G485: <i>Fields, Particles & Frontiers of Physics</i> - Module 3: Nuclear physics 5.3.1 The nuclear atom	Topic 8: Nuclear and particle physics Spec ref(s): 130 and 131 Topic 11: Nuclear radiation Spec ref(s): 169 and 170
A2 Unit G485: <i>Fields, Particles & Frontiers of Physics</i> - Module 3: Nuclear physics 5.3.2 Fundamental particles	Topic 8: Nuclear and particle physics Spec ref(s): 10, 141, 142 and 143
A2 Unit G485: <i>Fields, Particles & Frontiers of Physics</i> - Module 3: Nuclear physics 5.3.3 Radioactivity	Topic 11: Nuclear radiation Spec ref(s): 169, 172 and 173
A2 Unit G485: <i>Fields, Particles & Frontiers of Physics</i> - Module 3: Nuclear physics 5.3.4 Nuclear fission & fusion	Topic 11: Nuclear radiation Spec ref(s): 164, 166, 167 and 168
A2 Unit G485: <i>Fields, Particles & Frontiers of Physics</i> - Module 4: Medical imaging 5.4.1 X-rays	Not covered in the Edexcel specification
A2 Unit G485: <i>Fields, Particles & Frontiers of Physics</i> - Module 4: Medical imaging 5.4.2 Diagnostic methods in medicine	Not covered in the Edexcel specification
A2 Unit G485: <i>Fields, Particles & Frontiers of Physics</i> - Module 4: Medical imaging 5.4.3 Ultrasound	Not covered in the Edexcel specification
A2 Unit G485: <i>Fields, Particles & Frontiers of Physics</i> - Module 5: Modelling the universe 5.5.1 Structure of the universe	Topic 10: Space Spec ref(s): 158, 160, 161, 162 and 163
A2 Unit G485: <i>Fields, Particles & Frontiers of Physics</i> - Module 5: Modelling the universe 5.5.2 The evolution of the universe	Topic 10: Space Spec ref(s): 163

In-depth comparison

Edexcel Physics (2015)	OCR B (2008)	What's new for you	What do you no longer teach
Topic 1: Working as a physicist		This topic is not intended to be taught as a discrete topic. The knowledge and skills specified here should pervade the entire course.	
Topic 2: Mechanics	<p>AS Unit G481: <i>Mechanics</i> – Module 1: Motion 1.1.2 Scalars & vectors 1.1.3 Kinematics 1.1.4 Linear motion</p> <p>AS Unit G481: <i>Mechanics</i> – Module 2: Forces in action 1.2.1 Force 1.2.2 Nonlinear motion 1.2.3 Equilibrium</p> <p>AS Unit G481: <i>Mechanics</i> – Module 3: Work & energy 1.3.1 Work & conservation of energy 1.3.2 Kinetic & potential energies 1.3.3 Power</p> <p>A2 Unit G484: <i>The Newtonian World</i>- Module 1: Newton's laws of motion 4.1.1 Newton's laws of motion 4.1.2 Collisions</p>	Projectiles	Car safety
Topic 3: Electric circuits	<p>AS Unit G482: <i>Electrons, Waves & Photons</i> – Module 1: Electric current 2.1.1 Charge and current</p> <p>AS Unit G482: <i>Electrons, Waves & Photons</i> – Module 2: Resistance 2.2.2 e.m.f. and p.d. 2.2.3 Resistance</p>		

	<p>2.2.4 Resistivity 2.2.5 Power</p> <p>AS Unit G482: <i>Electrons, Waves & Photons</i> – Module 3: DC circuits 2.3.1 Series & parallel circuits 2.3.2 Practical circuits</p>		
Topic 4: Materials	<p>AS Unit G481: <i>Mechanics</i> – Module 2: Forces in action 1.2.3 Equilibrium</p> <p>AS Unit G481: <i>Mechanics</i> – Module 3: Work & energy 1.3.4 Behaviour of springs and materials</p>		
Topic 5: Waves and particle nature of light	<p>AS Unit G482: <i>Electrons, Waves & Photons</i> – Module 4: Waves 2.4.1 Wave motion 2.4.2 Electromagnetic waves 2.4.3 Interference 2.4.4 Stationary waves</p> <p>AS Unit G482: <i>Electrons, Waves & Photons</i> – Module 5: Quantum physics 2.5.1 Energy of a photon 2.5.2 The photoelectric effect 2.5.3 The wave particle duality 2.5.4 Energy levels in atoms</p>		
Topic 6: Further mechanics	<p>A2 Unit G484: <i>The Newtonian World</i> Module 1: Newton's laws of motion 4.1.1 Newton's laws of motion 4.1.2 Collisions</p> <p>A2 Unit G484: <i>The Newtonian World</i> Module 2: Circular motion & oscillations 4.2.1 Circular motion</p>		

Topic 7: Electric and magnetic fields	<p>A2 Unit G485: <i>Fields, Particles & Frontiers of Physics</i>- Module 1: Electric & magnetic fields 5.1.1 Electric fields 5.1.2 Magnetic fields 5.1.3 Electromagnetism</p> <p>A2 Unit G485: <i>Fields, Particles & Frontiers of Physics</i>- Module 2: Capacitors & exponential decay 5.2.1 Capacitors</p>		
Topic 8: Nuclear and particle physics	<p>A2 Unit G485: <i>Fields, Particles & Frontiers of Physics</i>- Module 3: Nuclear physics 5.3.1 The nuclear atom 5.3.2 Fundamental particles</p>		
Topic 9: Thermodynamics	<p>A2 Unit G484: <i>The Newtonian World</i> Module 3: Thermal physics 4.3.1 Solid, liquid & gas 4.3.2 Temperature 4.3.3 Thermal properties of materials 4.3.4 Ideal gases</p>		
Topic 10: Space	<p>A2 Unit G485: <i>Fields, Particles & Frontiers of Physics</i>- Module 5: Modelling the universe 5.5.1 Structure of the universe 5.5.2 The evolution of the universe</p>	<p>156 $l = \frac{L}{4nd^2}$</p> <p>157 trigonometric parallax 159 Hertzsprung-Russell diagram</p>	
Topic 11: Nuclear radiation	<p>A2 Unit G485: <i>Fields, Particles & Frontiers of Physics</i>- Module 3: Nuclear physics 5.3.4 Nuclear fission & fusion</p>		
Topic 12: Gravitational fields	<p>A2 Unit G484: <i>The Newtonian World</i> Module 2: Circular motion & oscillations 4.2.2 Gravitational fields</p>		
Topic 13: Oscillations	<p>A2 Unit G484: <i>The Newtonian World</i> – Module 2: Circular motion & oscillations 4.2.3 Simple harmonic oscillations</p>		

