**AQA A Level Physics Student Book 1**

1. **Particles and nuclides (6 Topics)**
	1. What are the building blocks of the universe Pg 2
	2. Stable and unstable nuclei Pg 6
	3. Detecting Nuclear Radiation Pg 7
	4. Nuclear Equations Pg 9
	5. Photon Model Pg 10
	6. Antiparticles Pg 11
2. **Fundamental particles (7 topics)**
	1. The Particle Zoo Pg 18
	2. Fundamental Particles Pg 19
	3. Quarks Pg 20
	4. Fundamental Forces Pg 21
	5. Feynman Diagrams Pg 25
	6. Classification of Particles Pg 26
	7. Conservation Laws Pg 33
3. **Electrons and energy levels (3 topics)**
	1. Photons Pg 43
	2. Excitation and Ionisation Pg 47
	3. The Fluorescent Tube Pg 51
4. **Particles of light (3 topics)**
	1. The Photoelectric Effect Pg 58
	2. Electron Diffraction Pg 63
	3. Wave-Particle Duality Pg 65
5. **Waves (6 topics)**
	1. Progressive Waves Pg 71
	2. Longitudinal and Transverse Waves Pg 75
	3. Polarisation Pg 79
	4. Refraction Pg 83
	5. Total Internal Refraction Pg 86
	6. Optical Fibres Pg 88
6. **Combining waves (4 topics)**
	1. Superposition Pg 96
	2. Interference Pg 97
	3. Stationary Waves Pg 101
	4. Diffraction Pg 108
7. **Introduction to mechanics (4 topics)**
	1. Scalar and Vector Quantities Pg 117
	2. Vector Addition Pg 118
	3. Resolving Vectors Pg 120
	4. Moments Pg 123
8. **Motion and its measurement (4 topics)**
	1. Motion in a Straight line Pg 134
	2. SUVATs Pg 136
	3. Terminal Velocity Pg 141
	4. Projectile motion Pg 142
9. **Newton's laws of motion (3 topics)**
	1. Newton’s 1st Law Pg 152
	2. Newton’s 2nd Law Pg 153
	3. Newton’s 2nd Law Pg 155
10. **Work, energy and power (4 topics)**
	1. Work Pg 169
	2. Calculating Energy Pg 170
	3. Conservation of Energy Pg 172
	4. Efficiency Pg 173
11. **Momentum (5 topics)**
	1. Introduction to Momentum Pg 183
	2. Momentum and impulse Pg 184
	3. Conservation of Momentum Pg 188
	4. Momentum and Energy Pg 190
	5. Elastic and Inelastic Collisions Pg 191
12. **Properties of materials (3 topics)**
	1. Density Pg 201
	2. Hooke’s Law Pg 203
	3. Stress and Strain Pg 211
13. **Current electricity (8 topics)**
	1. Current Pg 222
	2. Potential difference and EMF Pg 227
	3. Resistance Pg 229
	4. Super Conductors Pg 229
	5. Ohms Law Pg 230
	6. Electrical Characterises Pg 231
	7. Thermistors Pg 233
	8. Resistivity Pg 236
14. **Electrical circuits (5 topics)**
	1. Power Pg 246
	2. Circuit Calculations Pg 248
	3. Internal Resistance and EMF Pg 250
	4. Resistor Networks Pg 255
	5. Potential Dividers Pg 259

**AQA A Level Physics Student Book 2**

1. **Circular motion (3 Topics)**
	1. Circular Measure Pg 2
	2. Centripetal Acceleration Pg 3
	3. Centripetal Force Pg 4
2. **Simple harmonic motion (6 Topics)**
	1. Simple Harmonic Motion Pg 12
	2. Mathematical description of SHM Pg 14
	3. Time period of Oscillations Pg 17
	4. Energy Pg 21
	5. Free, Damped and Forced Oscillations Pg 24
	6. Forced Oscillations Pg 26
3. **Gravitation (5 Topics)**
	1. Newton’s law of Gravity Pg 36
	2. Gravitational Fields Pg 38
	3. Gravitational Potential Pg 40
	4. Escape Velocity Pg 44
	5. Orbits Pg 45
4. **Thermal physics (6 Topics)**
	1. Thermodynamics Pg 56
	2. Heating up/ Change of State Pg 58
	3. Gas Laws Pg 66
	4. Ideal gas Equation Pg 71
	5. Ideal Gases Pg 74
	6. Kinetic Theory Pg 76
5. **Electric fields (5 Topics)**
	1. Coulomb’s Law Pg 86
	2. Electric Field Strength Pg 89
	3. Radial Electric Fields Pg 94
	4. Electrical Potential Pg 96
	5. Similarities Between E and G fields Pg 102
6. **Capacitance (2 Topics)**
	1. Capacitors Pg 108
	2. Capacitor Charge and Discharge Pg 116
7. **Magnetic fields (4 Topics)**
	1. Magnetic Flux Lines Pg 131
	2. Force on Current Carrying wires Pg 133
	3. Forces of Charge Particles Pg 137
	4. Cyclotrons Pg 140
8. **Magnetic flux (4 Topics)**
	1. Magnetic Flux Pg 148
	2. Electromagnetic Induction Pg 150
	3. Applications Pg 154
	4. Induced EMF for a Rotating coil Pg 155
9. **Alternating currents and transformers (4 Topics)**
	1. AC and Voltage Pg 163
	2. Oscilloscope Pg 165
	3. Transformers Pg 167
	4. Transmission of Electrical Power
10. **The evidence for the nucleus (3 Topics)**
	1. Rutherford Scattering Pg 176
	2. Radioactive emissions Pg 183
	3. Nature of Alpha, Beta and Gamma Pg 183
11. **Radioactive decay (5 Topics)**
	1. Random nature of Decay Pg 195
	2. Decay constant and Half-life Pg 197
	3. Radioisotopes Pg 201
	4. Nuclear Instability Pg 204
	5. Modes of Decay Pg 204
12. **Nuclear energy (4 Topics)**
	1. Energy and Mass Pg 213
	2. Nuclear Reactions Pg 215
	3. Nuclear Power Pg 217
	4. Safety Pg 220