

STEP UP TO 6TH FORM

KIMBERLEY SCHOOL TRANSITION INFORMATION

Physics

A Level

COURSE DETAILS

UNIT 1

Forces & Motion

- Kinematics and dynamics
- Linear and projectile motion
- Motion with non-uniform acceleration
- Density and pressure
- Work, energy and power
- Springs and mechanical properties of materials
- Newton's laws of motion and momentum

Electrons, Waves and Photons

- Charge, current, electromotive force, potential difference and power
- Resistivity and resistance
- Series and parallel circuits
- Potential dividers
- Wave motion
- Electromagnetic waves
- Stationary waves and superposition
- Quantum physics
- Photons and the photoelectric effect

UNIT 2

Particles and Medical Physics

- Capacitors
- Coulomb's law
- Uniform electric fields and electric potential energy
- Magnetic fields
- Electromagnetism
- The nuclear atom
- Fundamental particles
- Radioactivity
- Nuclear fission and fusion
- Using X rays
- Diagnostic methods in medicine

UNIT 4

Newtonian World and Astrophysics

- States of matter
- Thermal properties of materials
- Ideal gases
- Circular motion and centripetal force
- Simple harmonic motion and damping
- Newton's law of gravitation
- Planetary motion
- Gravitational potential and energy
- Stars

EXAMS

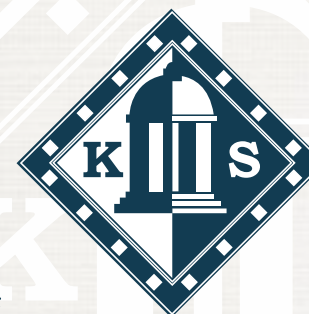
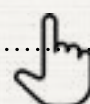
Modelling (37%) - 2hr15min
Exploring (37%) - 2hr15min
Unified (26%) - 1hr15min



LINK TO THE SPECIFICATION

See a detailed document of what we will cover in this course:

www.ocr.org.uk/Images/171726-specification-accredited-a-level-gce-physics-a-h556.pdf



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Work you can do to prepare for A Level study

Wider Reading

Rovelli, C. (2014). Seven Brief Lessons on Physics
Czerski, H. (2016) Storm in a Teacup: The Physics of Everyday Life
Bryson, B. (2004). A Short History of Nearly Everything
Hawkin, S & Mlodinow, L. (2006). A Briefer History of Time
Singh, S. (2004). Big Bang
Miodownik, M. (2013). Stuff Matters
Feynman, R. (1994). Six Easy Pieces

Recap of GCSE Maths Skills

A-Level Physics: Essential Maths Skills (CGP A-Level Physics)

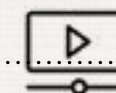
Brushing up on GCSE Triple only Physics content

(especially if you did the Combined GCSE course)

- Space physics – life cycle of a star, orbits, the expanding universe
- Light properties – refraction, reflection, lenses and colour
- Black body radiation and infrared
- Electrical fields
- Boyle's law for gas pressure and volume
- Nuclear radiation in medicine
- Nuclear fission and fusion reactions
- Moments, levers and gears
- Conservation of momentum and impact forces
- Pressure in fluids and upthrust
- Ultrasound
- Seismic waves
- Generators and transformers

FILM & TV

Interstellar (2014)
Gravity (2013)
The Theory of Everything (2014)
Wonders of the Universe BBC (Documentary 2011)



USEFUL RESOURCE LINKS

For content and wider reading www.khanacademy.org/
For problem solving <https://isaacphysics.org>
The University of Nottingham's www.sixtysymbols.com/
Interactive simulations <https://phet.colorado.edu/en/simulations/category/physics>

YOUTUBE



Veritasium	Reel Truth Science
ASAPscience	Steve Mould
SixtySymbols	Real Engineering
Minutephysics	Up and Atom
TedEd	Smarter Everyday
The Royal Institution	

PODCASTS



Ologies with Alie Ward
Science Vs
The Curious Cases of Rutherford and Fry
New Scientist Weekly
The Life Scientific
The Infinite Monkey Cage

