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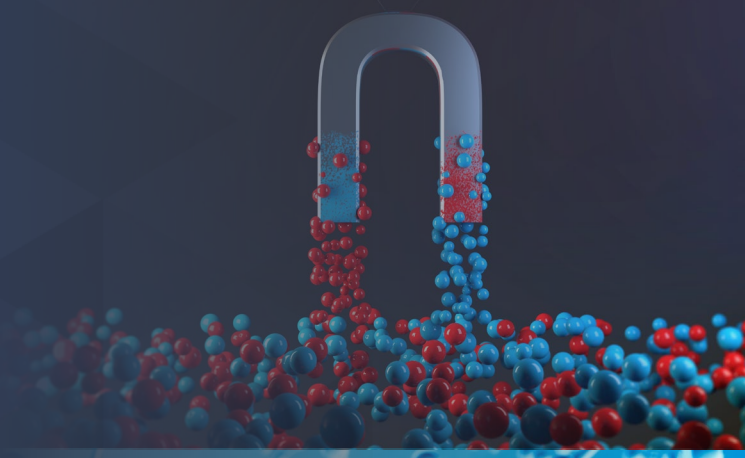
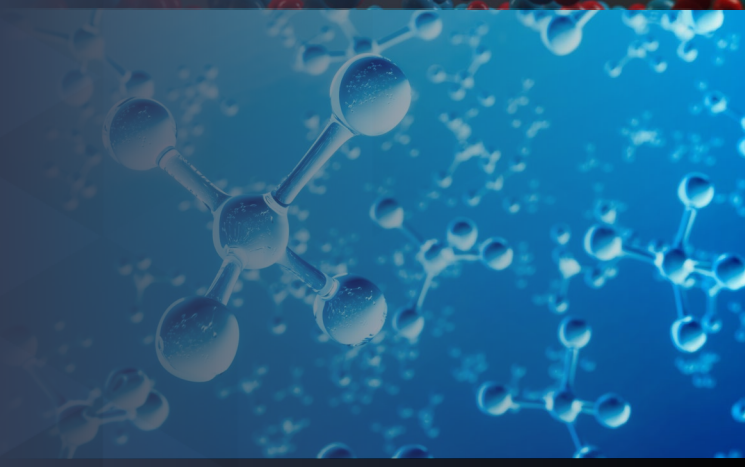
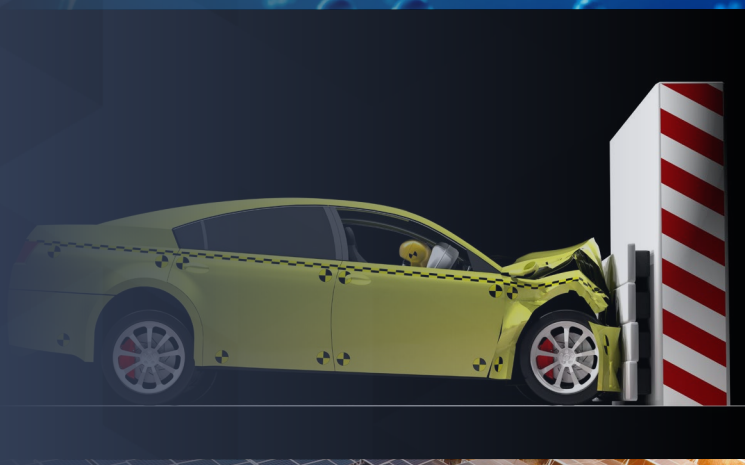
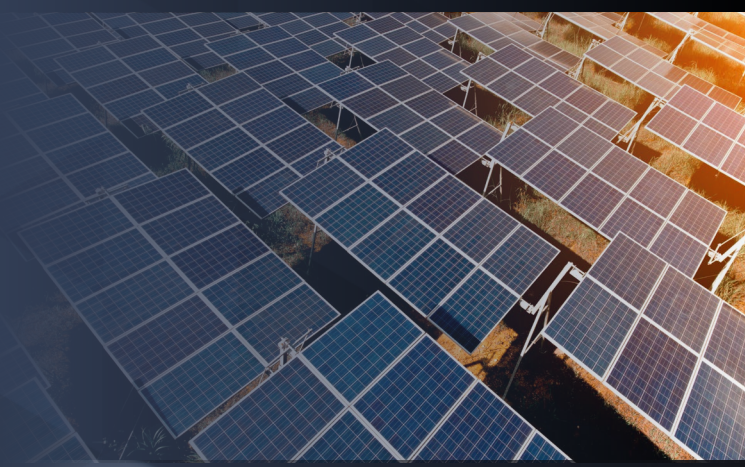
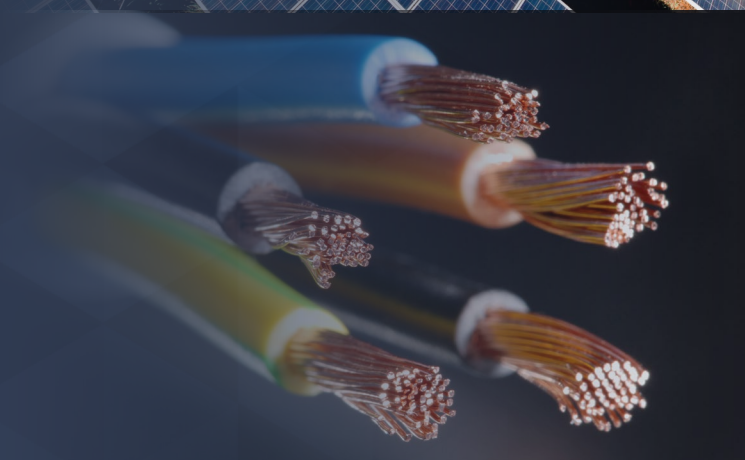
AQA GCSE Physics
Teaching and Revision Essentials











AQA GCSE Physics
Teaching and Revision Essentials

Titles contained within this booklet have been compiled to support the teaching and learning of the AQA GCSE Physics specification. The playlists can be accessed by teachers as well as students wishing to guide their exam revision.

AQA GCSE Physics
Energy

Essential viewing Supplementary viewing Resources available

	Title	Series	Length	Description	Link
	Energy Transfers	Collisions	6 min	This clip looks at quantities including work, force, distance, mass, velocity, and kinetic energy. Worked examples using different mathematical formulae are applied to everyday examples of collisions.	https://clickv.ie/w/wtxl
	Forms of Energy		13 min	This video uses familiar scenarios – including skateboarding, tennis, vehicles and plant growth – to explore different forms of energy, their effects on objects and processes and conversion from one form to another.	https://clickv.ie/w/vtxl
	Episode 3: Energy Efficiency	Shedding Light on Energy	30 min	This episode introduces the concept of efficiency. It investigates how much light energy we get out of light globes compared to the amount of electrical energy that goes into them, how much kinetic energy we get out of cars compared to the amount of chemical energy that we put into them, and how our arched feet make us the long-distance running champions of the animal world.	https://clickv.ie/w/0txl
	Renewables	Electricity Generation	43 min	This programme examines the pros and cons of various renewable energy sources such as wind, solar, biomass, tidal, geothermal and HEP. It will encourage students to consider whether 100% renewable electricity is realistic.	https://clickv.ie/w/Grxl
	Non-renewables	Electricity Generation	27 min	This programme explores the pros and cons of coal, gas and uranium as a fuel source. It also includes debates around nuclear safety, fracking, and carbon capture and storage.	https://clickv.ie/w/Hrxl
	The Greening of Energy		47 min	This programme examines the pros and cons of a variety of renewable energy sources. The de-carbonisation of energy is discussed and tidal, hydro-electric power, wind, solar, biomass and biogas are all considered.	https://clickv.ie/w/ztxl
	Episode 1: Forms of Energy	Shedding Light on Energy	29 min	This programme introduces the different types of energy that affect their lives daily and describe how energy can change from one form to another.	https://clickv.ie/w/1txl

	Title	Series	Length	Description	Link
	Episode 2: Measuring Energy	Shedding Light on Energy	35 min	This episode looks at the 'joule', the unit for energy, including how much energy is stored in different foods by comparing apples and oranges, and how much energy we need to do certain things, including doing nothing much at all.	https://clickv.ie/w/2txl
	Power and Efficiency	Electricity: A 3-D Animated Demonstration Series	34 min	This programme defines electric power and explores a variety of means by which it is produced, transmitted, and consumed. Efficiencies and inefficiencies relating to energy conservation are also discussed.	https://clickv.ie/w/quxl
	Sources of Electricity	Shedding Light on Electricity	23 min	In 'Sources of Electricity', we take a detailed look at where our electricity comes from: thermal and hydroelectric power stations, wind farms, and solar farms. We alo examine the advantages and disadvantages of these sources of electricity.	https://clickv.ie/w/se5p

View the playlist for Energy at:
https://clickv.ie/w/KY8p

AQA GCSE Physics
Electricity

Essential viewing Supplementary viewing Resources available

	Title	Series	Length	Description	Link
	Electrical Circuits		23 min	This programme looks at various components of a circuit; voltage, current, resistance and Ohm's Law; series and parallel circuits; and demonstrates the use of Kirchoff's Law.	https://clickv.ie/w/5txl
	Introduction to Electricity		25 min	This programme introduces the concept of electricity to the student who has used this source of energy all his or her life but has never really understood where it comes from and how it works. It gives a little summary of the early history and covers static and current electricity.	https://clickv.ie/w/Atxl
	One Flash and You're Ash!: Working Safely with Electricity		15 min	This programme explores electrical safety and examines the dangers; the cause, effect and treatment of electric shock; how to avoid the dangers; risk management; the effects of different levels of current on the body; and first aid techniques.	https://clickv.ie/w/7txl
	Electric Current, Voltage and Circuits	Science Key Concepts: Physics	17 min	The programme introduces electric current and voltage and measures these in series and parallel circuits. Resistance and Ohm's Law are both discussed.	https://clickv.ie/w/6txl
	Electricity and Magnetism		21 min	This programme traces the relationship between magnetism and electricity from the first accidental discovery of induced current. Electric and magnetic fields, including features of coils and solenoids are covered.	http://clickv.ie/w/8Y8p
	Electrical Safety		23 min	This programme covers circuits, the effects of electricity on the body, potential difference and the pool of potential, as well as generation and distribution of electricity.	https://clickv.ie/w/8txl
	Electric Circuits	Shedding Light on Electricity	18 min	This programme examines how lights, switches, and other electrical devices are all connected either in "series" or in "parallel" with each other.	http://clickv.ie/w/GEcp
	Electric Currents	Shedding Light on Electricity	20 min	In episode three, we take a look at what electric current is (it's basically the flow of electrons through a wire) and at how electric current is measured. We then examine the different ways that electric current flows in series and parallel circuits.	http://clickv.ie/w/HEcp

View the playlist for Electricity at:
https://clickv.ie/w/7_8p

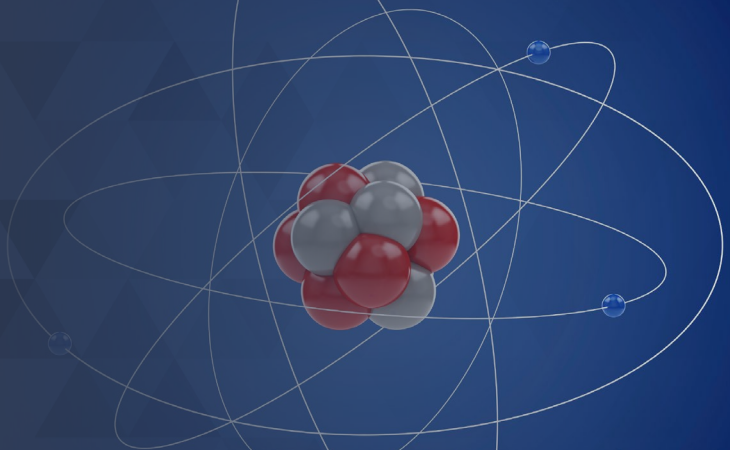
AQA GCSE Physics
Particle model of matter

Essential viewing | Supplementary viewing | Resources available

	Title	Series	Length	Description	Link
	Changing States of Matter	Science Building Blocks	27 min	This programme explains particle theory of matter, changes of state, latent heat, expanding and contracting, and the states of matter around us.	https://clickv.ie/w/Zqxl
	Heat Energy: Transfer and Properties	Science Key Concepts: Physics	20 min	This programme explores the transfer of heat energy, thermal expansion, and specific heat capacity.	https://clickv.ie/w/xtxl
	Gases, Liquids, Solids: Going through Phases	Understanding Chemistry in Our World	28 min	This lesson brings to life the amazing physical changes that are going on around us every day. It explores how substances behave differently as they change states (gas, liquid, solid).	https://clickv.ie/w/Ftxl
	Motion of Particles		4 min	This programme explores how the particles in gases, solids, and liquids move.	https://clickv.ie/w/Etxl

View the playlist for Particle model of matter at:
https://clickv.ie/w/jZ8p

AQA GCSE Physics
Atomic structure



Essential viewing Supplementary viewing Resources available

Title	Series	Length	Description	Link
Nuclear Chemistry: Inside the Atom		21 min	This programme discusses atomic structure, the properties of particles that make up the nucleus, how and why some nuclei release energy and/or particles, the means of detecting ionising radiation, and uses of radioisotopes.	https://clickv.ie/w/Gtxl
Bohr's Model of the Atom		27 min	This programme focuses on Niels Bohr, who worked with some of the best physicists of the 20th century to devise his atomic model.	https://clickv.ie/w/Dqxl
Nuclear Radiation		23 min	This programme looks at radiation that originates in the nucleus of an atom, the history of the discovery of radioactivity, what makes atoms radioactive, methods for detecting radioactivity, the types of radiation, and more.	https://clickv.ie/w/Htxl
Radioisotopes at Work: Medical and Industrial Uses		27 min	This programme examines the use of radioisotopes in medicine and industry. Radioisotope manufacture is described and radiation safety is discussed in different contexts.	https://clickv.ie/w/Jtxl
Nuclear Fission	Nuclear Energy	8 min	This clip details how fission occurs in radioactive nuclei to release energy. It also explores why the amount of energy generated when nuclei split is so great, using Einstein's equation: E = mc2.	https://clickv.ie/w/Ltxl
Nuclear Fusion	Nuclear Energy	8 min	This clip examines nuclear fusion, including what occurs at the sub-atomic level and why the energy released by fusion is vastly greater than in nuclear fission. Einstein's equation, E = mc2 is used to calculate specific energy quantities.	https://clickv.ie/w/Ktxl

View the playlist for Atomic structure at:
https://clickv.ie/w/zZ8p

AQA GCSE Physics
Forces

Essential viewing | Supplementary viewing | Resources available

	Title	Series	Length	Description	Link
	Applications of Scalar and Vector Quantities	Collisions	7 min	Using tennis court action, this clip examines various quantities including initial and final velocity, displacement, acceleration and time.	https://clickv.ie/w/Mtxl
	Force and Pressure		42 min	This programme introduces the types of force pressure that exist, including contact and non-contact forces, atmospheric and liquid pressure.	https://clickv.ie/w/Otxl
	Push and Pull Forces		12 min	This video introduces forces and some important basic laws and principles of physics. It includes defining and identifying forces, balanced forces, unbalanced forces, and inertia.	https://clickv.ie/w/Ptxl
	Gravity and Me: The Force That Shapes Our Lives		89 min	Physics professor Jim Al-Khalili investigates the amazing science of gravity and recreates groundbreaking experiments in gravity including when Galileo first worked out how to measure it.	https://clickv.ie/w/CZ8p
	All about Motion: Displacement, Velocity and Acceleration		20 min	Displacement, velocity and acceleration assist us in describing this movement by telling us the direction in which an object is travelling, how far it goes, how fast it travels and whether it slows down or speeds up.	https://clickv.ie/w/Utxl
	Episode 1: Speed	Shedding Light on Motion	24 min	This programme discusses how speed is a measure of how far something travels in a given amount of time, looks at how speed varies in a sprint, explains the concept of velocity, and shows how to measure an object's speed.	https://clickv.ie/w/Vtxl
	Newton's Laws of Motion	Collisions	10 min	This clip covers the laws, explaining each and looking at how they apply to different examples of collisions. Calculations involving force, mass, acceleration and stopping time are applied to various scenarios.	https://clickv.ie/w/Rtxl
	Forces and Motion: The Physics of Car Crashes		26 min	The programme explores ideas of inertia, resultant forces, energy and momentum, but applies it in the real world context of designing air bags, crumple zones and seats to protect passengers.	https://clickv.ie/w/Qtxl
	Episode 2: Acceleration	Shedding Light on Motion	24 min	This programme identifies acceleration as a measure of how quickly something changes its speed. Observe different scenarios to see this concept come to life.	https://clickv.ie/w/Ytxl

View the playlist for Forces at:
https://clickv.ie/w/FZ8p

AQA GCSE Physics
Waves

Essential viewing Supplementary viewing Resources available

Title	Series	Length	Description	Link
Waves in the Ocean (Senior Version)		24 min	This film provides an excellent summary of the nature of waves in the ocean, how they are formed, their characteristics, why and how waves break, and much more.	https://clickv.ie/w/-txl
Sound	Daily Planet in the Classroom	61 min	Daily Planet listens in to the world of sound. Listen to the shocking sound of the Zeusaphone, and see how one musician is turning to solar energy to power his instrument.	https://clickv.ie/w/auxl
Waves: Seismic Imaging and Tectonics		29 min	This programme introduces the different types of waves, how each behave depending on the nature of the material they are passing through, and how seismic survey teams make use of these differences in velocity, absorption, refraction and reflection to find out about underlying rock structures.	https://clickv.ie/w/cuxl
Shedding Light on Electromagnetic Waves	Shedding Light	60 min	This programme examines waves and takes a detailed look at radio waves, microwaves, infrared light, visible light, ultraviolet light, X-rays and gamma rays.	https://clickv.ie/w/euxl
Shedding Light on Lenses	Shedding Light	56 min	This programme explains how convex and concave lenses produce images, how magnifying glasses work, and how projectors produce giant images on giant cinema screens. He then shows how our eyes work and how spectacles help people who have vision defects.	https://clickv.ie/w/duxl
Light and Mirrors	Science in Action	19 min	Learn how different types of lenses and mirrors work, how the reflecting or refracting of light can affect us in our everyday life, and the importance of lenses and mirrors in our everyday lives.	https://clickv.ie/w/huxl

View the playlist for Waves at:
https://clickv.ie/w/LZ8p

AQA GCSE Physics
Magnetism and electromagnetism

Essential viewing Supplementary viewing Resources available

	Title	Series	Length	Description	Link
	Electricity and Magnetism		21 min	This programme traces the relationship between magnetism and electricity from the first accidental discovery of induced current. Electric and magnetic fields, including features of coils and solenoids are covered.	https://clickv.ie/w/r_8p
	Electricity Transmission and Distribution		27 min	This video looks at how electricity is distributed from power station to consumers along the National Grid. It looks at how step up and step down transformers are used to reduce line loss during transmission and to make the voltage safe for use in homes, and other safety features, such as earth rods, insulators and circuit breakers are explained.	https://clickv.ie/w/kuxl
	Magnetism	Scientific Eye	19 min	This programme investigates why some materials are magnetic, what a magnetic field is, how magnets are made, and the uses of magnets today.	https://clickv.ie/w/muxl
	Electric Motors	Electricity: A 3-D Animated Demonstration Series	18 min	This programme explores the operation of AC and DC motors. It examines how one or more fixed magnets can cause linear movement or rotation of a current-carrying wire, and explains motor torque as a prelude to the practical design of a direct current motor.	https://clickv.ie/w/puxl

View the playlist for Magnetism and electromagnetism at:
https://clickv.ie/w/VZ8p

AQA GCSE Physics
Space physics

Essential viewing Supplementary viewing Resources available

	Title	Series	Length	Description	Link
	Stars of the Universe	Into Space	13 min	This programme explores important features of the universe such as the Milky Way including our Sun and closest neighbour, Alpha Centauri. The characteristics of different types of stars and the changes they experience during their life cycle are also described.	https://clickv.ie/w/suxl
	Energy of Orbital Systems	Gravity and Motion	8 min	This clip examines escape velocity and energy of orbital systems, including gravitational potential energy in radial gravitational fields in a variety of situations.	https://clickv.ie/w/tuxl
	Orbits of Satellites	Gravity and Motion	13 min	This clip examines fundamental aspects of orbital motion of satellites in our solar system and beyond, including physical quantities affecting orbital motion, Kepler's laws of planetary motion and orbital properties and their uses.	https://clickv.ie/w/vuxl
	Satellites	The Complete Cosmos	5 min	This programme shows how satellites in orbit around the Earth have revolutionised our understanding of our own planet.	https://clickv.ie/w/wuxl

View the playlist for Space physics at:
https://clickv.ie/w/z_8p

Notes

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