

Week 3 16th March	P6 Waves	<p>Characteristics of transverse and longitudinal waves</p> <p>Measuring and calculating wave speed in a ripple tank and in solids</p> <p>Reflection and refraction</p> <p>The electromagnetic spectrum properties and uses</p> <p>Required Practicals: Calculating wave speed in liquids (water in ripple tank), gases (echo in air) and solids (vibrations on a string); How much infrared radiation is emitted/absorbed by different colour and texture surfaces</p> <p>Higher tier Explain refraction using wave fronts</p> <p>Reflection and refraction of radiowaves</p>	<p>Describe a method to measure the speed of a water wave in a ripple tank.</p> <p>Describe how microwaves heat up food.</p> <p>Explain how radiowaves are used in communication between two antennae on opposite sides of the planet.</p>
Physics only content		<p>Sound waves and ultrasound</p> <p>Seismic waves</p> <p>Colour, lenses, magnification</p> <p>Black body radiation</p> <p>Global warming</p> <p>Required Practicals: Reflection of light; Refraction of light</p>	<p>Explain how we discovered the structure of the Earth using seismic waves.</p>
Week 4 23rd March	P7 Electromagnetism	<p>Magnetic fields and compasses</p> <p>The magnetic effect of a wire and a solenoid</p> <p>The earth's magnetic field</p> <p>Higher tier Flemings left-hand rule</p> <p>Force on a conductor and magnetic flux density</p> <p>Electric motors</p>	<p>Explain why we say compasses are 'north seeking'.</p> <p>What factors can increase the strength of an electromagnet?</p> <p>Describe how a dc electric motor works.</p>
Physics only content		Electromagnets	Describe how a loudspeaker works.

		Loudspeakers and microphones The generator effect Transformers and the transformer equation	Describe how a microphone works. Explain why we use step-up and step-down transformers in the national grid.
Week 5 30th March	P8 Space (Physics only)	The solar system and orbits The life cycle of the sun and other stars Formation of elements Red-shift	Explain why Pluto is very difficult to see from Earth. Describe the relationship between the distance of a planet from the sun and the time it takes to orbit. Why do fusion reactions require high temperatures? Describe the life cycle of a star similar to our Sun.

Year 11 Science GCSE Revision – PHYSICS (PAPER 1)

Physics only content is the extra work that **separate science** students have studied

All support resources (specimen exam papers, mark schemes, powerpoints, summary sheets, core practicals) can be found on the reference drive at **N:\Reference\Science\NEW AQA GCSE**

Revision should be checked against syllabus content (different for TRIOLOGY and separate PHYSICS) at **N:\Reference\Science\NEW AQA GCSE\syllabus content (physics)**

Make sure you **revise the required practicals** properly. These are more likely to come up on the examination papers

Week Beginning	Topic	Key Ideas	Topics for possible longer answer responses
Week 6 6th April	P1 Energy	Energy calculations – elastic potential, kinetic and gravitational potential Work and energy transfers – including dissipation of energy Power Specific heat capacity calculation Global energy supply and demand - Renewable and non-renewable resources Required Practical: Specific heat capacity Higher tier Efficiency	Describe the energy transfers involved in a swinging pendulum/ roller coaster. How can you reduce the amount of energy dissipated from a house? Describe a method to determine the specific heat capacity of a block of brass. Discuss the advantages and disadvantages of wind power. Describe a method to determine the specific heat capacity of a metal block.

Physics only content	Describe how insulation prevents heat transfer by conduction, convection and radiation Required Practical: Effectiveness of different insulating materials	Describe a method to investigate which materials is the most effective insulator.	
Week 7 13th April	P2 Electricity	Circuit symbols Current and voltage in series and parallel circuits The I-V characteristics and properties of a filament lamp, diode, thermistor and resistor Resistance in series and parallel circuits – being able to calculate the total resistance in a series circuit Wiring of a plug – colours and functions of each part The National grid and the role of transformers Calculating power and energy Required practicals: Resistance of a length of wire; I-V characteristics of a resistor, lamp and diode; Resistors in series and parallel	Describe and explain the shape of an I-V graph of a filament bulb, diode an ohmic conductor. Label the different wires in the plug and describe their function. Why is electricity transmitted at high voltages in the national grid? Describe a method to investigate the resistance of different lengths of wire.
Physics only content	Static electricity – static charge and electric fields		
Week 8 20th April	P3 Particle Model of Matter	Density calculations of regular and irregular shaped objects Changes of state and the particle model of solids liquids and gases Specific heat capacity and latent heat – including heating and cooling curves Thermal conductivity Particle motion in gases Required practical: calculating the density of regular solids, irregular solids and liquids.	Describe a method to determine the density of an irregularly shaped object. Describe what happened during a change of state from solid to liquid in terms of particle arrangement and motion.

Physics only content	Increasing the pressure of a gas	Explain why increasing the number of particles in a container increases the pressure exerted by a gas.
Week 9 27th April	P4 Atomic Structure	<p>Structure of the atom and relative mass and charge of protons, neutrons and electrons</p> <p>Properties of alpha, beta and gamma radiation</p> <p>Nuclear decay equations for alpha, beta and gamma</p> <p>Half life</p> <p>Hazards of radiation - Irradiation and contamination</p>
		<p>Describe how you could determine the type of radiation being emitted by a source using paper, aluminium and lead.</p> <p>Why is alpha radiation more dangerous in contamination than irradiation?</p> <p>Describe how a person can protect themselves from radiation.</p>
Physics only content	<p>Background radiation</p> <p>Uses of radiation in smoke detectors, paper thickness, tracers and medical applications</p> <p>Nuclear fission and nuclear reactors</p> <p>Nuclear fusion</p>	<p>How does a smoke detector work?</p> <p>Why would a smoke detector not work with gamma radiation?</p> <p>Explain how nuclear fission can lead to a chain reaction.</p> <p>Describe the process of nuclear fusion.</p>
Week 10 4th May	Physics Equations	<p>Practise questions using and rearranging the following equations (they will be given in the exam)</p> <p>Practise converting between different units</p> <p>e.g. kN → N</p> <p>MJ → J</p> <p>nm → m</p>
		<p>$W = m g$</p> <p>$W = F s$</p> <p>$F = k e$</p> <p>$M = F d$</p> <p>$\rho = F/A$</p> <p>$s = v t$</p> <p>$a = \Delta v/t$</p> <p>$F = m a$</p> <p>$\rho = m v$</p> <p>$E_k = \frac{1}{2} m v^2$</p> <p>$E_p = m g h$</p> <p>$P = E/t$</p> <p>$P = W/t$</p> <p>efficiency = useful output energy transfer/ total input energy transfer</p> <p>efficiency = useful power output/ total power input</p> <p>$v = f \lambda$</p> <p>$Q = I t$</p> <p>$V = I R$</p> <p>$P = V I$</p> <p>$P = I^2 R$</p>

			$E = P t$ $E = Q V$ $\rho = m/v$
	Exam practise	<p>Use specimen papers and summary sheets on the reference drive to develop exam technique.</p> <p>Use your revision guides and class notes to recap the required practicals for each topic.</p>	