Long Term Plan: Physics Year 8



Half term	Unit title	Key knowledge/ Content to learn and retain	Essential skills to acquire (subject & generic)	Link to subject ethos and driver (rename)	Anticipated misconcepti ons	Links to previous KS	Links to future KS	Opportunity for stretch for high prior attainers	SMSC & British Values	Cultural Capital	Career Link
One	States of Matter	The difference between chemical and physical changes The structure of solids, liquids and gasses on a particle level The properties of solids, liquids and gasses, with explanations based on their structure. Changes of state	Record accurate experimental data Present and interpret data in tabular and graphical form. Extended writing		That particles change in their properties when they change states, rather than change arrangement and movements.	During the KS2 programme of study, students will have looked at the simple properties of solids, liquids and gasess, and will have explore simple changes of state	This unit builds directly onto the Paper One Unit, "The Particulate Model of Matter". In this unit students will study particle arrangement in greater depth, and explore concepts of specific heat capacity and latent heat.	Students could be asked to consider materials that sublimate. Extended writing, linking properties to structure	Working safely in a lab and respecting each other's work space	The ubiquity of the three states of matter means that problems can be framed in a variety of familiar and unfamiliar contexts	As an introductory course, the KS3 physics programme opens doors to a wide range of STEM field careers; particularly those in engineering, architecture and mechanical sciences

Two	States of	The difference	Record	That particles	During the	This unit	Students	Working	The ubiquity	As an
	Matter	between	accurate	change in	KS2	builds directly	could be	safely in a lab	of the three	introductory
		chemical and	experimental	their	programme of	onto the	asked to	and respecting	states of	course, the
		physical	data	properties	study,	Paper One	consider	each other's	matter means	KS3 physics
		changes		when they	students will	Unit,"The	materials that	work space	that problems	programme
			Present and	change states,	have looked at	Particulate	sublimate.		can be framed	opens doors
		The structure	interpret data	rather than	the simple	Model of			in a variety of	to a wide
		of solids,	in tabular and	change	properties of	Matter".	Extended		familiar and	range of
		liquids and	graphical form.	arrangement	solids, liquids		writing, linking		unfamiliar	STEM field
		gasses on a		and	and gasess,	In this unit	properties to		contexts	careers;
		particle level	Extended	movements.	and will have	students will	structure			particularly
			writing		explore	study particle				those in
		The			simple	arrangement				engineering,
		properties of			changes of	in greater				architecture
		solids, liquids			state	depth, and				and
		and gasses,				explore				mechanical
		with				concepts of				sciences
		explanations				specific heat				
		based on their				capacity and				
		structure.				latent heat.				
		Changes of								
		state								
Three	Waves	The	Record	That waves	Students will	This unit	Students	Working	The ubiquity	As an
		properties of	accurate	move matter -	have studied	builds directly	could asked to	safely in a lab	of waves	introductory
		waves,	experimental	rather than	light and	into the GCSE	consider what	and respecting	means that	course, the
		including	data	just energy.	sound at KS2,	Waves and	sound travels	each other's	problems can	KS3 physics
		amplitude,	Gutu	Juse energy.	but this will	Electromagent	at different	work space	be framed in a	programme
		frequency and	Present and		be the first	ic Waves	sounds in	work space	variety of	opens doors
		wavelength	interpret data		time	topic, which	different		familiar and	to a wide
		wavelengen	in tabular and		considering	forms a large	materials.		unfamiliar	range of
		Sound waves	graphical form.		them as waves	part of Paper	materials.		contexts	STEM field
		and light	5. aprilear 101111.		Cicili as 1944965	Two.	Students		CONCERCS	careers;
		waves	Extended			1000	could be			particularly
		waves					asked to			those in
		Reflection,	writing				explain why			
		· · ·					explain why lenses have			engineering, architecture
		absorption	Drawing				the effects			
		and emission	scientific				une effects			and

		Refraction, lenses and colour	diagrams to the correct scale				they do.			mechanical sciences
Four	Waves	The properties of waves, including amplitude, frequency and wavelength Sound waves and light waves Reflection, absorption and emission Refraction, lenses and colour	Record accurate experimental data Present and interpret data in tabular and graphical form. Extended writing Dwarinng scientifc diagrams to the correct scale	That waves move matter - rather than just energy.	Students will have studied light and sound at KS2, but this will be the first time considering them as waves	This unit builds directly into the GCSE Waves and Electromagent ic Waves topic, which forms a large part of Paper Two.	Students could asked to consider what sound travels at different sounds in different materials. Students could be asked to explain why lenses have the effects they do.	Working safely in a lab and respecting each other's work space	The ubiquity of waves means that problems can be framed in a variety of familiar and unfamiliar contexts	As an introductory course, the KS3 physics programme opens doors to a wide range of STEM field careers; particularly those in engineering, architecture and mechanical sciences
Five	Magnetism	Bar magnets and the magnetic field arond them. Magnetic attraction and repulsion The Earth's magnetic field	Record accurate experimental data Present and interpret data in tabular and graphical form. Extended writing	That all metals are magnetic, rather than just iron, nickel and cobalt.	In KS2, students will have studied magnets and the effects of replusion and attraction, but this is the first time that they will have looked at the idea of	This unit builds directly onto the deeper study of magnets and electromagent s, which is the final Paper Two topic in GCSE Physics	Students could be asked to explore the difference between magnetic and true north	Working safely in a lab and respecting each other's work space	The ubiquity of magnets means that problems can be framed in a variety of familiar and unfamiliar contexts	As an introductory course, the KS3 physics programme opens doors to a wide range of STEM field careers; particularly those in

		Electromagnet s Electric Motors			magnetic fields					engineering, architecture and mechanical sciences
Six	Magnetism	Bar magnets and the magnetic field arond them. Magnetic attraction and repulsion The Earth's magnetic field Electromagnet s Electric Motors	Record accurate experimental data Present and interpret data in tabular and graphical form. Extended writing	That all metals are magnetic, rather than just iron, nickel and cobalt.	In KS2, students will have studied magnets and the effects of replusion and attraction, but this is the first time that they will have looked at the idea of magnetic fields	This unit builds directly onto the deeper study of magnets and electromagent s, which is the final Paper Two topic in GCSE Physics	Students could be asked to explore the difference between magnetic and true north	Working safely in a lab and respecting each other's work space	The ubiquity of magnets means that problems can be framed in a variety of familiar and unfamiliar contexts	As an introductory course, the KS3 physics programme opens doors to a wide range of STEM field careers; particularly those in engineering, architecture and mechanical sciences