

KS3 Curriculum Map – Physics:

Topic	Substantive Knowledge This is the specific, factual content for the topic, which should be connected into a careful sequence of learning.	Disciplinary Knowledge (Skills) This is the action taken within a particular topic in order to gain substantive knowledge.	Assessment Opportunities What assessments will be used to measure student progress?
Working Scientifically	<ul style="list-style-type: none"> Asking scientific questions Planning investigations Recording data Analysing data Evaluating data 	<ul style="list-style-type: none"> Describe how scientists develop an idea into a question that can be investigated and identify variables. Write a plan for an investigation and recognise the difference between accurate and precise data and identify risks in an experiment. Design an appropriate table or graph and calculate a mean for repeat readings. Plot data on a graph and find a pattern in data to draw conclusions Evaluate data and reliability of methods, showing awareness of potential sources of random and systematic error and possible improvements. 	<ul style="list-style-type: none"> Kerboodle Review Questions Summative End of Unit Test Practice Calculations Working Scientifically Glossary Keywords Mini formative tests or quizzes Experimental investigations Summative end of unit test
Forces	<ul style="list-style-type: none"> Introduction Squashing and stretching Drag forces and friction Forces at a distance Balanced and unbalanced forces 	<ul style="list-style-type: none"> Explain what forces do, interaction pairs, differences between contact and non-contact. Use Hooke's Law to identify proportional stretching of a spring and describe in terms of bonds why solid surfaces provide a support force. Explain why drag forces and friction arise. Describe the effect of a field and link features to weight on different planets. 	<ul style="list-style-type: none"> Kerboodle Review Questions Summative End of Unit Test Practice Calculations Mini formative tests or quizzes Experimental investigations Summative end of unit test

		<ul style="list-style-type: none"> • Present force arrow drawings to show and explain the speed or direction of motion of objects. 	
Sound	<ul style="list-style-type: none"> • Waves • Sound and energy transfer • Loudness and pitch • Detecting sound • Echoes and ultrasound 	<ul style="list-style-type: none"> • Compare the different types of wave and their features. • Describe sound travel in terms of energy transfer in different media and contrast speed with the speed of light. • Comparative evaluation 	<ul style="list-style-type: none"> • Kerboodle Review Questions • Summative End of Unit Test • Practice Calculations • Keywords • Mini formative tests or quizzes • Experimental investigations • Summative end of unit test
Light	<ul style="list-style-type: none"> • Light • Reflection • Refraction • Eye and camera • Colour 	<ul style="list-style-type: none"> • Describe what happens when light interacts with materials and state the speed of light. • Explain how images are formed in a plane mirror and difference between reflection and scattering. • Describe and explain what happens when light is refracted. • Describe how the eye and camera work. • Explain what happens when light passes through a prism and how filters work in terms of primary and secondary colours. 	<ul style="list-style-type: none"> • Kerboodle Review Questions • Summative End of Unit Test • Practice Calculations • Keywords • Mini formative tests or quizzes • Experimental investigations • Summative end of unit test
Space	<ul style="list-style-type: none"> • The night sky • The solar system • The earth • The moon 	<ul style="list-style-type: none"> • Describe the objects that you can see in the night sky, the structure of the Universe. • Name the objects in the Solar System and describe some similarities and differences between the planets of the Solar System and identify patterns in the spacing and diameters of planets. • Explain the motion of the Sun, stars, and Moon across the sky, why seasonal changes happen and use data to show the effect of the Earth's tilt on temperature and day-length. • Describe and explain the phases of the Moon and why eclipses happen. 	<ul style="list-style-type: none"> • Kerboodle Review Questions • Summative End of Unit Test • Practice Calculations • Keywords • Mini formative tests or quizzes • Experimental investigations • Summative end of unit test

<p>Electricity and magnetism</p>	<ul style="list-style-type: none"> • Charging up • Circuits and current • Potential difference • Series and parallel • Resistance • Magnets and magnetic fields • Electromagnets 	<ul style="list-style-type: none"> • Explain how objects can become charged and what is meant by an electric field. • Describe what is meant and how we measure current, potential difference and calculate resistance in series and parallel circuits. • Draw field lines round a magnet in detail. • Predict and test the effect of changes to an electromagnet. 	<ul style="list-style-type: none"> • Kerboodle Review Questions • Summative End of Unit Test • Practice Calculations • Keywords • Mini formative tests or quizzes • Experimental investigations • Summative end of unit test
<p>Energy</p>	<ul style="list-style-type: none"> • Energy in fuels • Conservation of energy • Temperature linked to energy • Conduction and convection • Radiation • Energy resources • Power • Work, energy and machines 	<ul style="list-style-type: none"> • Comparative evaluation to determine daily energy needs • Create relationship of energy stores and transfer • Interpret energy movement in particles • Link features of different energy models • Compare renewable and non-renewable energy • Manipulate formulaic relationship between energy and power • Manipulate formulaic relationship of work done and relate to levers and gears 	<ul style="list-style-type: none"> • Kerboodle Review Questions • Summative End of Unit Test • Practice Calculations • Keywords • Mini formative tests or quizzes • Summative end of unit test
<p>Motion and pressure</p>	<ul style="list-style-type: none"> • Speed • Motion graphs • Pressure in gases linked to atmospheric • Pressure in liquids • Pressure in solids • Turning forces 	<ul style="list-style-type: none"> • Compare instantaneous and average speed, measurement and calculation • Interpret, construct and calculate speed using distance time graphs • Describe factors that affect gas pressure and interpret observations • Describe how liquid pressure changes with depth and apply to real life examples and how it relates to floating and sinking. • Describe the factors that affect the pressure on a solid and apply the equation to real life scenarios • Manipulate formulaic relationship of moments and relate to situations involving moments. 	<ul style="list-style-type: none"> • Kerboodle Review Questions • Summative End of Unit Test • Practice Calculations • Keywords • Mini formative tests or quizzes • Summative end of unit test

<p>Turning Points in Physics</p>	<ul style="list-style-type: none"> • Discovering the Universe • The Big Bang • Spacecraft and satellites • Mission to the Moon • Radioactivity • Electromagnetism 	<ul style="list-style-type: none"> • Comparative ideas and models about the Universe that developed in different cultures and the importance of evidence • Link evidence and present and describe key events following the Big Bang and relate to the timescale of the Universe. • Describe how satellites are launched and compare the different orbits and uses of satellites. • Comparative evaluation of the risks and benefits of the space programme. • Describe what is meant by a radioactive material and relate to alpha, beta, gamma, half-life and some uses and risks of using. • Describe how to generate electricity using electromagnetic induction and how electromagnetic waves are used in communication 	<ul style="list-style-type: none"> • Kerboodle Review Questions • Summative End of Unit Test • Practice Calculations • Keywords • Mini formative tests or quizzes • Summative end of unit test
----------------------------------	---	---	--