Curriculum Map

Subject: Science **Year Group: 7**

	Autumn 1/Autumn 2	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Content **'Know What'**	**1 Independent Study and Maths Skills** **2 How Science Works**	**Physics: Forces** Different types of forces What do forces do? Friction and drag forces Forces at a distance Balanced and unbalanced forces	**Biology: Cells –** what is a cell? Animal and Plant cells – parts and function, specialised cells, diffusion, unicellular organisms	**1 Chemistry: Particles** What is a particle? The Particle Model. States of Matter and changes of state. Diffusion and gas pressure **2 Body Systems** Understanding different systems in the body	**1 Biology: Reproduction –** understanding human and plant reproduction **2 Chemistry: Atoms, Elements and Compounds** What are elements and how many are there? The difference between atoms and molecules The difference between elements and compounds	**1 Physics: Light & Sound** Properties of light waves – reflection, refraction, lenses, the eye, colours Properties of sound waves, loudness, pitch, frequencies we can hear, detecting sound, echoes and ultrasound **2 Investigation** **3 Summer Independent Learning Project: Space** Understanding planets, orbits and the solar system
Skills **'Know How'**	Independent Study skills Maths skills How Science Works – Safety in a science lab Variables Planning experiments Making predictions	Measuring forces Planning and carrying out experiments safely Identifying variables Recording and analysing results Using scientific equations to carry out calculations	How to use a microscope safely How to identify different parts of a cell using a microscope	1 Using the particle model to explain behaviour of solids, liquids and gases 2 Understand the hierarchy of organisation in multicellular organisms,	**1** Understand the changes that happen during puberty Understand the structures and functions of the human reproductive system, including fertilisation, implantation,	Practical work investigating light waves and sound waves Using a protractor and ruler to make accurate measurements Observational skills Making predictions

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				Understand breathing using models Synthesise understanding of skeleton, bones, joints and muscles to explain movement	foetal development, menstrual cycle Understand plant reproduction, flowers, pollination, fertilisation, germination and seed dispersal Flower dissection 2 Using the particle model to compare elements and compounds, using chemical symbols and formulae	Using variables to plan and carry out scientific investigations. Making observations, recording results, analysing results and writing conclusions.
Key questions	What is science? What does it mean to be safe in a science lab?	What do forces do? What happens when you stretch a spring? What is friction?	1 - What is a cell? What are the components, and differences between plant and animal cells? What is a single celled organism? What is diffusion?	1 What is a particle? How can we explain the properties of solids, liquids and gases using ideas about particles? What happens when substances change state? 2 Why do we breathe? What happens when we breathe? Why do we have a skeleton?	1 What is puberty? What is reproduction? How is a baby made? What is menstruation? How do plants reproduce? 2 what are elements? What are compounds? How do we write chemical formulae?	1 How do we see? What happens when light travels? What is the law of reflection? How does refraction happen? What happens to white light when it passes through a prism? What are sound waves? What is the difference between loudness and pitch? How do we hear?

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				How do joints help us move? How do muscles help us move?		What different things do we see when we look at the night sky? What are planets, satellites, stars, comets, meteors, galaxies? What is in the solar system? What are the different planets like? Why do we have day and night? Why do we have seasons?
Assessment	Low Stakes Knowledge test at end of topic to build a secure knowledge base. Literacy and numeracy tasks within each topic. Summative end of Term Exam to assess knowledge, understanding and application.	Low Stakes Knowledge test at end of topic to build a secure knowledge base. Literacy and numeracy tasks within each topic. Summative end of Term Exam to assess knowledge, understanding and application.	Low Stakes Knowledge test at end of topic to build a secure knowledge base. Literacy and numeracy tasks within each topic. Summative end of Term Exam to assess knowledge, understanding and application.	Low Stakes Knowledge test at end of topic to build a secure knowledge base. Literacy and numeracy tasks within each topic. Summative end of Term Exam to assess knowledge, understanding and application.	Low Stakes Knowledge test at end of topic to build a secure knowledge base. Literacy and numeracy tasks within each topic. Summative end of Term Exam to assess knowledge, understanding and application.	Low Stakes Knowledge test at end of topic to build a secure knowledge base. Literacy and numeracy tasks within each topic. Summative End of Year Exam to assess knowledge, understanding and application. Investigative skills assessment
Literacy/ Numeracy/ SMSC/ Character	Numeracy – calculating averages, identifying anomalies, presenting data, drawing graphs	Numeracy – recording and analysing results Using scientific equations	Numeracy – graphs Literacy – labelling diagrams, extended writing	Numeracy – recording results, plotting cooling and heating curves	Numeracy – calculations involving the menstrual cycle Literacy – explaining how	Numeracy – recording results in tables, analysing results, drawing graphs,

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	Literacy - understanding written instructions. Extended writing tasks SMSC - pair and group working, working in a safe way in a laboratory Character Integrity: during practical work Resilience: using equations and data handling Confidence: participation in classroom discussions	Drawing graphs and bar charts Literacy – describing forces and their effects SMSC - pair and group working, working in a safe way in a laboratory Character Integrity: during practical work Resilience: using equations and data handling Confidence: participation in classroom discussions	explaining the functions of different cell parts, comparing animal and plant cells	Calculating lung volume and measuring strength Literacy – extended writing using the particle model to compare solids, liquids and gases, explaining how and why we breathe, explaining how we move	human and plant reproduction happens Comparing wind and insect pollinated plants Comparing the different types of seed dispersal	Literacy – writing up practicals, extended writing project on pace