Year 7 Curriculum Implementation: Science

	Autumn	Spring	Summer
Knowledge & Skills	**Science Passport** • Identifying, naming and drawing lab equipment • Lab safety and lab rules • Making observations • Interpreting data including graph scales • Understanding and identifying variables • Drawing graphs **Cells** • Identifying and naming parts of cells • Identifying and naming specialised cells • Identifying and naming microscope parts • Using microscopes • Preparing a microscope slide • Carrying out magnification calculations • Understanding differences between unicellular and multicellular organisms • Identify and name parts of the skeletal system **Particles** • Interpreting scales (thermometers) • Being able to describe the properties of the three states of matter • Drawing the particle arrangement of the three states of matter • Investigating the changes of state when heating ice and recording the temperature and then plotting a graph of results • Making observations and drawing conclusions	**Forces** • Identifying and naming forces • Observing and describing the effects of forces • Relating forces to the movement of objects • Investigating accuracy and precision • Hooke's Law practical • Drawing force diagrams **Separation Techniques** • Separation Techniques – filtering, evaporation, distillation and chromatography • Using Bunsen burners • Rock salt practical • Reading scales • Graph plotting . **Space** • Describe Earth's rotation and orbit and link to day/night • Describe the relationship between the moon and sun • Describe the effect of Earth's tilt and explain the link to seasons • Know the orders of the planets and a mnemonic to remember this • Describe and explain differences between planets in our solar system • Know the difference between mass and weight and units associated with both • Describe the structure of our galaxy	**Acids & Alkalis** • Know examples of acids and alkalis including those found within the home • Describe and explain indicators and be able to use them • Red cabbage practical • Know what neutralisation is and carry out a neutralisation investigation • Rainbow Fizz practical • Simple titration practical • Writing word equations • How to name salts • Making salts **Reproduction – human & plant** • Identifying and naming parts of the male and female reproductive systems in plants and animals • Identifying changes in males and females relating to puberty • Knowing what menstruation is, when it occurs and how it is part of the female reproductive cycle • Being able to describe what happens during pregnancy and birth • Carry out a flower dissection • Germinating runner beans • What seed dispersal is, how it occurs and why it is important
Links to prior learning	• Summer home learning/transition pack • Year 3 Animals including humans topic • Identify that humans and some other animals have skeletons and muscles for support, protection, and movement • Year 4 States of matter topic • Compare and group materials together, according to whether they are solids, liquids, or gases. • Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius	Year 5 Properties & changes of materials • Know that some materials will dissolve in a liquid to form a solution and describe how to recover a substance from a solution. • Use knowledge of solids, liquids, and gases to decide how mixtures might be separated, including through filtering, sieving, and evaporating. • Demonstrate that dissolving, mixing and changes of state are reversible changes. Year 5 Earth & Space • Describe the movement of the Earth, and other planets, relative to the Sun in the solar system. • Describe the movement of the Moon relative to the Earth. • Describe the Sun, Earth, and Moon as approximately spherical bodies.	Year 5 Earth & Space • Describe the movement of the Earth, and other planets, relative to the Sun in the solar system. • Describe the movement of the Moon relative to the Earth. • Describe the Sun, Earth, and Moon as approximately spherical bodies. Year 3 Plants • Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal Year 5 Living things & habitats • Describe the life process of reproduction in some plants and animals.
Assessment	• Baseline assessment – multiple choice • Cells prior knowledge quiz • Cells formative assessment • Particles prior knowledge quiz • Particles formative assessment • Cells & particles assessment (when both units completed)	• Forces prior knowledge quiz • Forces formative assessment • Separation techniques prior learning quiz • Separation techniques formative assessment • Forces & separation techniques assessment (when both units completed)	• School Summative Assessment Week • Acids & alkalis formative assessment • Acids & alkalis and Reproduction assessment (when both units completed) • Space prior knowledge quiz • Space formative assessment • Space end of unit assessment • Reproduction prior learning quiz • Reproduction formative assessment • Reproduction and acids & alkalis assessment (when both units completed)
Home learning	• Key word spellings • Cell theory article • Microscopes magnify things article • Retrieval Practice sheets • Solids, liquids & gases article	• Key word spellings and definitions • Educake quiz • Step by step instructions article • What is gravity article • Plant life cycles article • Retrieval Practice sheets • Phases of the moon article • Galileo and his telescope article • Why does the moon orbit the earth article	• Key word spellings and definitions • Educake quiz • Retrieval Practice sheets • Plant life cycles article • Phases of the moon article • Galileo and his telescope article • Why does the moon orbit the earth article
Cultural Capital and extra-curricular opportunities	• KS3 STEM Club	• KS3 STEM Club • British Science Week activities • Science House Cup Challenge	• KS3 Stem Club • KS3 trip to Manchester Museum of Science & industry

Literacy	• Lab equipment • Key word spellings and definitions • Being able to read and follow a method • Science Story – Robert Hooke • Science Story – Democritus	• Key word spellings and definitions • Being able to write a method • Science Story – Applying Physics to the body • Science story – Chromatography Forgers • Science story – Hidden Figures • Reading for information – planet research • Devise a mnemonic to remember the order of the planets	• Key word spellings and definitions • Science story – Hidden Figures • Reading for information – planet research • Devise a mnemonic to remember the order of the planets • Science story – Inventors of IVF
Numeracy	• Interpreting scales • Magnification calculations • Reading thermometer scales • Choosing suitable graph scales	• Calculating upthrust, buoyancy, density & resultant force • Calculating Rf values • Reading scales • Graph plotting • Calculating extension of a spring • Interpreting data • Calculating gravity force • Calculating large distances in space • Calculating weight	• pH scale • Calculating and comparing gestation
Careers Information, Education, Advice and Guidance (CEIAG)	• Physiotherapist reading Comprehension • HVAC engineer reading comprehension	• Structural Engineer reading comprehension • Analytical Chemist reading comprehension • PhD student reading comprehension	• Reproductive endocrinologist reading comprehension
Spirituality	• Working with a lab partner – respect/ friendship • How our bodies work – self awareness	• Working with a lab partner – respect/ friendship • Awe and wonder at the origins of the universe	• Awe and wonder at the origins of the universe • Sensitivity when discussing reproduction
How can parents support the curriculum?	• Ready for high school pack • Reading the Science article together • Reiterating the importance of lab safety • Look at the warning symbols on household products together • Testing the key word spellings • Encourage students to use the knowledge organiser for the topic	• Testing the key word spellings • Encourage students to use the knowledge organiser for the topic • Read the Science articles together • Watch Brian Cox videos together such as Wonders of the Universe, Solar System, The Planets	• Testing the key word spellings • Encourage students to use the knowledge organiser for the topic • Read the Science articles together • Use scientific terminology for parts of the male and female anatomy • Watch David Attenborough videos such as Mating Game, Private Life of Plants and Life on Earth