Curriculum Map **Subject: KS3 Science** **Year Group: 7**

	Year 7 first half			Year 7 second half		
	Bio Swifter, Higher, Stronger	Chem All that Matter	Phys Forces and Space	Bio Inheritance of Life	Chem Exploring Reactions	Phys Energy and Electricity
Content- WHAT will be learned? What previous learning can be linked? Why this order/**sequence**?	Relatable content to maximise engagement in KS3 biology • Healthy Diet making good food choices and diabetes • Skeletal system muscles, muscle contraction, antagonistic muscles • Respiration aerobic and anaerobic • circulatory system, heart structure, double pump, blood and blood vessels, heart disease • Respiratory system. Asthma; exercise; smoking cigarettes, cancer.	Early familiarisation with particle model required across all subjects. Linked to prior learning with primary feeder school (y4/5). • States of matter Particle model diagrams, changes of state with cooling curves. • Diffusion • Separation methods filtration, evaporation, distillation and chromatography • Combustion The fire triangle • Water purification methods Hard and soft water	Linked to prior learning with primary feeder school (y5). • Forces Units, balanced and unbalanced forces, force diagrams. • Hooke's law Stretching a spring, experiment variables, graph skills. • Resistive forces Friction and air resistance • Speed Speed equation and calculation, terminal velocity, graph skills, distance time graphs • Space The solar system planets , stars , space exploration, the Universe and the big bang	Building from organ systems within SHS to introduce "adapted to function" within cell biology and linking to GCSE curriculum. Linked to prior learning with primary feeder school (y5/6). • 7 characteristics of living things; • Organisation Cells, organs and Systems, plant and animal cells, specialised cells, fermentation. • Reproductive system Puberty, internal and external fertilisation, pregnancy and birth • Classification, • Variation and inheritance DNA structure, evolution, selective breeding	Building from particle model and linking to GCSE curriculum. • Atoms, elements compounds and mixtures • Periodic table and predicting reactivity • Metals and their properties Rusting, alkali metals with water, metals with acid • Acid and acid reactions • Neutralisation The pH scale, acids and bases (alkalis), making salts, word equations.	Linked to prior learning with primary feeder school (y4/6). • Energy stores and pathways • Heat transfers Conduction, convection, radiation, insulation and insulators. • Fuels Renewable and non-renewable, power calculations, energy sources. • Electricity Charge, circuits and symbols, series and parallel circuits, current in circuits, batteries
Skills- What will be developed?	Word and symbol equations Data interpretation	Graph plotting Experimental planning and execution.	Rearranging equations Graph plotting and interpretation	Graph plotting concluding and evaluation Data interpretation	Word and symbol equations	Data interpretation Graph concluding
Key 'How'/'Why' Questions- What **powerful knowledge** will be gained? What areas/themes/concepts will be explored?	Food contains nutrients vital for a healthy lifestyle. The function of the heart, red blood cells and lungs.	States of matter and applying to particle models.	Knowledge of forces and being able to draw force diagrams with them.	Cells are the building blocks of life and adapted to suit unique functions. Inheritance of DNA following fertilisation of egg by sperm cell.	Atomic theory and particle model. Word equation to represent reactions. The pH scale and application of universal indicator. Periodic Table as a device to help organise data on properties of elements	Knowledge of circuit symbols and how they link together. Key concept of charge flowing around a circuit and different possible paths (series and parallel).
SEND- how will support be seen? Seating plans? Simplified questions?	Keyword box for each lesson, glossary pages for each unit, knowledge organisers in booklet, scaffolded tasks and sentence starters in appropriate lessons.	Keyword box for each lesson, glossary pages for each unit, knowledge organisers in booklet, scaffolded tasks and	Keyword box for each lesson, glossary pages for each unit, knowledge organisers in booklet, scaffolded tasks and	Keyword box for each lesson, glossary pages for each unit, knowledge organisers in booklet, scaffolded tasks and	Keyword box for each lesson, glossary pages for each unit, knowledge organisers in booklet, scaffolded tasks and	Keyword box for each lesson, glossary pages for each unit, knowledge organisers in booklet, scaffolded tasks and

		sentence starters in appropriate lessons.	sentence starters in appropriate lessons.	sentence starters in appropriate lessons.	sentence starters in appropriate lessons.	sentence starters in appropriate lessons.
Assessment- What? Why? Progress checks are formative and assessments are summative	Progress Check 1 Progress Check 2 Progress Check 3 Mid Unit Assessment End of Unit Assessment	Progress Check 1 Progress Check 2 Progress Check 3 Mid Unit Assessment End of Unit Assessment	Progress Check 1 Progress Check 2 Progress Check 3 Mid Unit Assessment End of Unit Assessment	Progress Check 1 Progress Check 2 Progress Check 3 Mid Unit Assessment End of Unit Assessment	Progress Check 1 Progress Check 2 Progress Check 3 Mid Unit Assessment End of Unit Assessment	Progress Check 1 Progress Check 2 Progress Check 3 Mid Unit Assessment End of Unit Assessment
What **memory for learning** skills will be required- modelling? Concrete answers? Retrieval?	Retrieval quizzes throughout starters, model answers within PPTs, progress checks.	Retrieval quizzes throughout starters, model answers within PPTs, progress checks.	Retrieval quizzes throughout starters, model answers within PPTs, progress checks.	Retrieval quizzes throughout starters, model answers within PPTs, progress checks.	Retrieval quizzes throughout starters, model answers within PPTs, progress checks.	Retrieval quizzes throughout starters, model answers within PPTs, progress checks.
Literacy- reading, extended accurate writing and oracy opportunities	• Long answer question on diabetes • Long answer question on cancer	• Long answer plan for separation techniques • Comprehension task on incomplete combustion.	• Long answer conclusion on Hooke's law • Long answer question on planetary formation	• Long answer question on puberty	• Long answer question on subatomic particles • Long answer task on periodic table development	• Long answer question on alternative energy resources
Numeracy/computing skills	Data interpretation	Graph plotting	Rearranging equations Graph plotting and interpretation	Graph plotting concluding and evaluation Data interpretation	Data interpretation	Data interpretation Graph concluding
Character development	Respectful of people's body type. Compassionate towards those with related health issues. Resilient learning about emotionally difficult health topics.	Resourceful applying separation technique knowledge to real life use.	Aspirational career links.	Respectful language used within reproductive system, and ideas towards genders and relationships.	Acceptance of the scientific contribution by different nationalities	Respectful ideal around alternative energy resources.
Equality/Diversity opportunities	Alternative diets based of ethics and religion			Non-gender specific vocabulary with sex determination. Avoid family and couple stereotypes	Contribution by other religions/societies (Al-Khali on pH)	Alternative energy resources and environmental impact
Homework/Independent learning	Quizzes on science from KS2	Quizzes on science from KS2	Quizzes on science from KS2	Quizzes on science from previous Y7 units	Quizzes on science from previous Y7 units	Quizzes on science from previous Y7 units
CIAG coverage/links	Dietician and Personal Trainer, links to roles within the NHS.	Fire service and water companies.	Sports science and aeronautical engineering.	Health science, links to role within the NHS.	Material engineering.	Electrical engineering, climate scientist.

Curriculum Map **Subject: KS3 Science** **Year Group: 8**

	Year 8 first half			Year 8 second half		
	Bio Plant Power	Chem Earth, resources, and products	Phys Sound and Light	Bio Body Systems	Chem Rates and Reactions	Phys Moving the World
Content- WHAT will be learned? What previous learning can be linked? Why this order/**sequence**?	Application of "adapted to function" within IoL to plant cell biology and linking to GCSE curriculum. • Organisation Cells, organs and Systems, plant cells, specialised cells. • Photosynthesis Equation, limiting factors, leaf adaptions, testing leaf for starch, photosynthesis practical • Modern farming methods • Plant reproduction • Respiration • Food chains and food webs Pyramids of biomass and number, biomagnification, and DDT. • Carbon cycle Decomposition, combustion, factors affecting and impacts of climate change, interpretation of global climate change data	Cross curricular links with geography studying topics at similar time and sustainability in y7. • Earth Structure of the earth, composition of the atmosphere • Resources from the Earth Crude oil, fractional distillation, uses of fractions, plastics from oil, polymerisation • Sustainability Problems with plastics, reduce, reuse and recycle. • Rocks cycle Types of rocks, weathering and erosion, fossilisation. • Extracting metals Reactivity series, displacement with carbon, electrolysis of molten compounds	Challenging content with links to y9 waves physics. • Waves Longitudinal and transverse waves, wave diagrams and keyword, speed calculations • Sound waves Pitch, frequency, amplitude and volume, the ear and hearing, ultra sound and echolocation. • Light waves Ray diagrams, shadows, laws of reflection, refraction and application, the eye and seeing, lens, cameras, spectrum of light, filters, coloured objects	Further study of human organ systems started within SHS and linking to GCSE curriculum. • Food tests Sugar, starch and protein tests. • Digestive system Function of organs, adaptations of the small intestine, enzymes and factors affecting enzymes action, enzyme practical • Nervous system nervous responses pathway, reflex arc, synapses, effect of drugs on the nervous system • Immune system Non-specific defences, role of white blood cells, antigens, vaccination and immunity, antibiotics and painkillers, staying healthy and medical professions in the NHS	Consolidating understanding of chemical reaction introduced within ATM & ER, introducing symbol equations, linking to GCSE curriculum. • Word and symbol equations chemical formulae, balancing equations, conservation of mass. • Endothermic and exothermic reactions • Combustion acid rain causes and effects • Reaction rates Collision theory, factor affecting rate, catalyst • Displacement reactions Reactivity series	Building on forces and electricity knowledge in F&F and E&E, introducing equations linking to GCSE curriculum. • Electricity Circuits and symbols, series and parallel circuits, voltage in circuits, resistance and V=IR calculations • Magnetism Magnetic interactions, magnetic fields, the earth's magnetic field and compasses, permanent magnets and domain theory, electromagnets and their uses • Forces calculating gravitational forces, calculating pressure, pressure in fluids, balancing forces and moments calculations, work done calculations, density and floating and sinking.
Skills- What will be developed?	Planning investigation and plotting graph and interpretation of data	Word and symbol equations	Ray Diagrams Manipulating equations	Graph plotting and analysis	Word and symbol equations Planning investigation Graph plotting	Manipulating equations
Key 'How'/'Why' Questions- What **powerful knowledge** will be gained? What areas/themes/concepts will be explored?	Plants' ability to produce glucose through photosynthesis and pass through food chain.	Earth as a resource to be extracted but the need for future sustainable development.	Waves as a way of transferring energy, including how this happens the direction of transfer.	Organs systems of the body have particular functions, cells and tissue within are adapted to that function.	Word equation to represent reactions. Reactions occur at different speeds and can be measured. Periodic Table as a device to help organise data on properties of elements	Building on idea of joining circuit symbols together. Adding to prior forces knowledge to look at resultant forces and the effect this has on motion.

SEND- how will support be seen? Seating plans? Simplified questions?	Keyword box for each lesson, glossary pages for each unit, knowledge organisers in booklet, scaffolded tasks and sentence starters in appropriate lessons.	Keyword box for each lesson, glossary pages for each unit, knowledge organisers in booklet, scaffolded tasks and sentence starters in appropriate lessons.	Keyword box for each lesson, glossary pages for each unit, knowledge organisers in booklet, scaffolded tasks and sentence starters in appropriate lessons.	Keyword box for each lesson, glossary pages for each unit, knowledge organisers in booklet, scaffolded tasks and sentence starters in appropriate lessons.	Keyword box for each lesson, glossary pages for each unit, knowledge organisers in booklet, scaffolded tasks and sentence starters in appropriate lessons.	Keyword box for each lesson, glossary pages for each unit, knowledge organisers in booklet, scaffolded tasks and sentence starters in appropriate lessons.
Assessment- What? Why? Progress checks are formative and assessments are summative	Progress Check 1 Progress Check 2 Progress Check 3 Mid Unit Assessment End of Unit Assessment	Progress Check 1 Progress Check 2 Progress Check 3 Mid Unit Assessment End of Unit Assessment	Progress Check 1 Progress Check 2 Progress Check 3 Mid Unit Assessment End of Unit Assessment	Progress Check 1 Progress Check 2 Progress Check 3 Mid Unit Assessment End of Unit Assessment	Progress Check 1 Progress Check 2 Progress Check 3 Mid Unit Assessment End of Unit Assessment	Progress Check 1 Progress Check 2 Progress Check 3 Mid Unit Assessment End of Unit Assessment
What **memory for learning** skills will be required- modelling? Concrete answers? Retrieval?	Retrieval quizzes throughout starters, model answers within PPTs, progress checks. Retrieval of Y7 organisation and respiration (SHS)	Retrieval quizzes throughout starters, model answers within PPTs, progress checks. Retrieval of Y7 metal properties (ER)	Retrieval quizzes throughout starters, model answers within PPTs, progress checks.	Retrieval quizzes throughout starters, model answers within PPTs, progress checks. Retrieval of Y7 healthy diets (SHS), Y8 starch test (PP), Y7 organisation (IoL), component of blood (SHS)	Retrieval quizzes throughout starters, model answers within PPTs, progress checks. Retrieval of Y7 word equations (ER), Y7 combustion (ATM), Y8 extracting metals (ERP)	Retrieval quizzes throughout starters, model answers within PPTs, progress checks. Retrieval of Y7 electricity (EE), Y7 forces (F&S)
Literacy- reading, extended accurate writing and oracy opportunities	Long answer question on plant leaf adaptations Comprehension and extended writing on effects of bioaccumulation in a novel context	Comprehension task on Earth structure	Extended writing on echolocation	Comprehension task on digestive system Long answer question on small intestine adaptations	Long answer conclusion and evaluation of rates experiment	Long answer question on magnetism
Numeracy/computing skills	Plotting graph and data interpretation	Data interpretation	Manipulating equations	Graph plotting and analysis	Planning investigation Graph plotting	Manipulating equations
Character development	Respectful of alternative diets and global impact of climate change.	Respectful of global impact of plastics.	Compassionate discussion on hearing or sight loss	Respectful of alternative diets. Compassionate towards those with related health issues. Respectful discussion on drug use.	Respectful of global impact of pollution.	Resourceful applying electricity, magnetism and moments knowledge to real life use.
Equality/Diversity opportunities	Alternative global farming methods and environmental impact. Carbon cycle and environmental impact of greenhouse gases.	Sustainable living and environmental impact of plastics. Historical context of women in science (Mary Anning)		Avoid gender occupation stereotypes		
Homework/Independent learning	Quizzes on science from Y7 units	Quizzes on science from Y7 units	Quizzes on science from Y7 units	Quizzes on science from previous Y8 units	Quizzes on science from previous Y8 units	Quizzes on science from previous Y8 units
CIAG coverage/links	Agriculture and modern farming methods	Project/site manager roles Career opportunities within the plastic industries	Theatre technicians	Roles within the NHS	Chemical engineering and the need to control chemical	Civil engineering of structures

					reactions in manufacturing plants	

Why do we do the content at that time?

Add something to every box, can’t be blank. Especially the equality and diversity box and careers.

Assessment box and retrieval box linking more.