Year 10 - Synergy CURRICULUM MAP: Science (HT)

RP = Required Practical

MD= Maths Department cross curricular

SD = Sports Science cross curricular

HT1: 4.1 Building Blocks	HT2: 4.2 Transport over larger distances	*Assessment Point: Summative or AFL*	HT3: 4.3 Interactions with environment	HT4: 4.4 Explaining change	*Assessment Point: Summative or AFL*	HT5: 4.5 Building blocks for change	HT6: 4.6 Interaction over small and large distances	EOY Assessment Point
To develop the basic building block knowledge of science • States of matter incl. Density (RP) and Gas pressure (MD) • Internal energy • Specific heat capacity (RP) • Waves (RP) • Cells (RP) • Atomic structure • Elements, compounds and mixtures • Osmosis (RP), diffusion and active transport	**To consolidate building block knowledge and apply systematic science knowledge** • Respiration (MD) • Cardiovascular system (SD) • Circulatory system (SD) • Digestive system • Nervous system (RP) • Endocrine system • Leaf structure • Photosynthesis (RP) • Water cycle	*HT1 & HT2* • *Exampro questions re 4.1/4.2* • *ATL grade input* • *Progress grade input*	**To apply scientific knowledge to a greater scientific understanding *(incl revisit to HT2 body systems throughout)*** • Disease and risk factors • CHD incl. treatments • Homeostasis • Diabetes • Puberty and fertility • Radiation and risk • Immune response • Vaccination • Medical testing • Stem cells • Antibiotics	**To begin to use scientific knowledge to justify opinion** • Earth's atmosphere *(HT2)* • Global warming *(HT3)* • Potable water **(RP)** *(HT2)* • Ecosystems **(RP)** • Inheritance, evolution and variation • Genetic modification • ***Kahoot/quizzes wkly/mthly*** • ***Exam technique 6 markers***	*HT3 & HT4 (with elements of HT1 & HT2)* • *Mock paper of paper 1 &2 Synergy to cover 4.1-4.4* • *Include Combined Trilogy for HA students* • *Progress grade input* • *ATL grade input*	**To apply growing scientific knowledge to show confidence in science** • Periodic table incl elements *(HT1)* • Atomic structure *(HT1)* • Balancing word equations • ***Exam technique 6 markers*** • ***Kahoot/quizzes wkly/mthly***	**To understand intertwining science in the working world around them** • Forces • Scalar and vector quantities • Magnets and magnetic fields • Chemical bonding *(HT1&5)* • Revision for end of year mock of 4.1-4.8 - *revisit 4.1-4.6; HT1-6* • ***Exam technique 6 markers***	**End of year MOCK of 4.1-4.8** • **Remind students that they may only be able to answer topics covered** • **Check knowledge base of key 47-4.8 concepts; electricity/power etc.** • **Use 4.1-4.8 mock in following Spring mocks in Y11; data compare** • **Identify potential intervention groups for Y11**

Year 11 - Synergy CURRICULUM MAP: Science (HT)

RP = Required Practical
MD= Maths Department cross curricular
SD = Sports Science cross curricular

HT1: 4.7 Movement and interactions	HT2: 4.8 Guiding Spaceship Earth towards a sustainable future	*Assessment Point: Summative or AFL*	HT3: Revision and exam technique	HT4: Revision and exam technique	*Assessment Point: Summative or AFL*	HT5: Exam preparation	HT6: Planning in Science	EOY Assessment Point
To develop increasing complex knowledge of applicable science • Distance, speed, time and acceleration (MD (RP) *(4.6 recap)* • Kinetic energy *(4.1 recap)* • Stopping distances (MD) • Electricity (MD)(RPx1) • Acids and alkalis (RPx2) *(recap 4.1, 5&6)* • Chemical changes (RPx2) • Electrolysis (RP)	**To relate and justify scientific knowledge to their surrounding world** • Carbon chemistry • Hydrocarbons • Energy resources • Recycling • Energy transfers and efficiency (MD) *(recap 4.6)*	• **Mock exam 4.1-4.8; reassess progress level and retained learning from y10** • **Progress grade and ATL input** • **Progress check of intervention groups; are they working?**	**To prepare and revise for GCSE exams** • Use of past papers and Exampro of 4.1-8 questions • Lessons on key areas; homework on developed/applied learning • RAG rated feedback chart to show which areas they are most and least confident; tailored revision sessions	**To build confidence in scientific analysis in preparation for GCSE exams** • Develop 6 mark question skills • Continue RAG rated revision sessions on identified areas • Continue Exampro/past paper revision • Extra intervention for late year 11 joiners/low confidence students ***Revisit all HT incl Y10 HT1-6 and Y11 HT1-4.*** ***-Seneca/Google classroom for revision access at home for all abilities***	• **Ensure access to revision guides and how to use same** • **Final intervention group check** • **RAG system on key knowledge areas checks**	Year 11 GCSE Exams begin approx May. X 4 papers Paper 1: 4.1-4.4 Paper 2: 4.1-4.4 Paper 3: 4.5-4.8 Paper 4: 4.5-4.8 Between Easter and end of all papers revisit: • All topic information 4.1-4.8 • Specific practice on graph drawing, equation recognition and application ***-Revisit all HT incl Y10 HT1-6 and Y11 HT1-4.*** ***-Seneca/Google classroom for revision access at home for all abilities***	**To engage post-examination students in the application of science** • Students to plan, deliver and evaluate their own experiments in groups • Engage student learning in science for potential scientific careers at college level and beyond • Teachers to deliver 'fun' experiments e.g.; elephant toothpaste, custard bombs, burning money etc.	• *Last RAG system check; last ATL*

Year 10 – Entry Learning Certificate (DUAL) CURRICULUM MAP:

(OR Year 11 ELC SINGLE award if only sitting one year)

Science (HT)

MD= Maths Department cross curricular

SD = Sports Science cross curricular

3 components needed for single award (over year 9/10 OR 11)

6 components needed for dual award (over Y9/10 and 11)

HT1: Component 5	HT2: Component 5	*Assessment Point: Summative or AFL*	HT3:Component 1	HT4: Component 1	*Assessment Point: Summative or AFL*	HT5: Component 3	HT5: Component 3	**EOY Assessment Point**
To outline the basics of physics including states of matter, energy and particle model O1: Energy stores O2: First law of thermodynamics and efficiency O3: Renewable and non-renewable energy resources O4: Contact and non-contact forces O5: Work done	**To outline the basics of physics including speeding up and slowing down** O6:Distance, speed and time (MD) O7: Stopping distances O8: Reaction times (MD) O9: Factors that affect braking distance O10: Alpha, beta and gamma radiation **TDA planning**	• Mock ESA • **C5 TDA:** *Investigate the thermal conductivity of different materials* • **C5 - ESA** • **Progress input and ATL input**	**To describe components of human body** O1: Cells O2: Tissues O3: Organs + organ systems O4: Respiration and healthy lifestyle O5: Communicable and non - communicable diseases O6: Immune system and vaccines O7: Medical drugs + placebos	**To describe components of human body in systems** O8: Central Nervous System O9: Endocrine system O10: Contraception **TDA planning** • ***Fun quizzes in teams - buzzers*** • ***C5 revision*** • ***C1 revision***	• Mock ESA • **C1. TDA:** *Investigate the effects of caffeine on pulse rate* • **C1 - ESA** • **Progress input and ATL input**	**To describe how elements, mixtures and compounds are used in science with reactions** O1: Atoms and elements O2: Compounds O3: States of matter O4: Different forms of carbon and their properties O5: Mixtures O6: Chromatography • ***Fun quizzes in teams - buzzers*** • ***C1&5 revision***	**To describe how materials are used in science around the world** O7: Reactive and unreactive metals including recycling metals O8: Properties of different metals O9: Alloys O10: Properties of different polymers **TDA planning** • ***Fun quizzes in teams - buzzers*** • ***C 1, 3 &5 revision***	• Mock ESA • C3. TDA: *Investigate the different colours in inks or food colours using paper chromatography.* • **C3 - ESA** • **Progress input and ATL input**

Year 11 – Entry Learning Certificate (DUAL) continuing from 10 ELC DUAL CURRICULUM MAP: Science (HT)

MD= Maths Department cross curricular
SD = Sports Science cross curricular
3 components needed for single award (over year 9/10 OR 11)
6 components needed for dual award (over Y9/10 and 11)

HT1: Component 2	HT2: Component 2	*Assessment Point: Summative or AFL*	HT3: Component 6	HT4: Component 6	*Assessment Point: Summative or AFL*	HT5: Component 4	HT5: Component 4	EOY Assessment Point
To describe the interlinking relationships between organisms and their habitats O1: Photosynthesis O2: Adaptation O3: Food chains and webs O4: Carbon cycle O5: Competition in animals and plants O6: Living and non-living factors on animals and plants O7: Effects of pollution	**To describe how life has developed on Earth** O8: Evolution, selective breeding and natural selection O9: Sexual and asexual reproduction O10: Genetics **TDA planning** • ***Fun quizzes in teams - buzzers*** • ***C2 revision*** • ***C1,3&5 recap***	• Mock ESA • **C2 - ESA** • **Progress input and ATL input** • **C2. TDA:** *Investigate the rate of photosynthesis in pond weed.*	**To describe how electricity and magnetism contribute to the working world** O1: Electric current, charge and resistance O2: A.C. and D.C. O3: Wiring a plug O4: Energy, power and time (MD) O5: Poles of a magnet O6: Factors that affect an electromagnet	**To relate how waves transfer energy and their use in the working world** O7: Transverse and longitudinal waves O8: Wave speed, frequency and wavelength (MD) O9: Describe the electromagnetic spectrum O10: Properties and dangers of EM spectrum **TDA planning** • ***Fun quizzes in teams - buzzers*** • ***C6 revision*** • ***C1,2,3&5 recap***	• Mock ESA • **C6. TDA:** *Investigate which materials are the best electrical conductors* • **C6 - ESA** • **Progress input and ATL input**	**To describe reactions of chemicals and impact on environment** O1: Acids, metals and testing for hydrogen O2: Acids and alkalis and neutralisation O3: Endothermic and exothermic reactions O4: Effects of catalyst on reactions O5: Formation of early atmosphere and photosynthesis O6: Present atmosphere • ***Fun quizzes in teams - buzzers*** • ***C4 revision*** • ***C1,2,3&5 recap***	**To relate human uses of science to the Earth and atmosphere** O7: Crude oil and fractional distillation O8: Burning fuels and their effect on the environment O9: Greenhouse gases O10: Potable water **TDA planning** • ***Fun quizzes in teams - buzzers*** • ***C4 revision*** • ***C1,2,3&5 recap***	• Mock ESA • **C4.TDA:** *Compare the temperature changes caused by some reactions* • **C4- ESA** • **Progress input and ATL input**