Curriculum Map						
Year 10 Combined						
Half term	Unit title with hyperlink to scheme of work	Unit summary	Skills & content covered	Skills & content revisited	Summary of formative marking, feedback and student response	Summative assessment schedule, including assessment criteria
Autumn Half-term 1	B4 Bioenergetics	In this section we will explore how plants harness the Sun's energy in photosynthesis in order to make food. This process liberates oxygen which has built up over millions of years in the Earth's atmosphere. Both animals and plants use this oxygen to oxidise food in a process called aerobic respiration which transfers the energy that the organism needs to perform its functions. Conversely, anaerobic respiration does not require oxygen to transfer energy. During vigorous exercise the human body is unable to supply the cells with sufficient oxygen and it switches to anaerobic respiration. This process will supply energy but also causes the build-up of lactic acid in muscles which causes fatigue	1.Photosynthesis 2.Rate of photosynthesis 3.RP Rate of photosynthesis 4.Uses of glucose 5.Aerobic and anaerobic respiration 6.Response to exercise 7.Metabolism	Plants and algae do not eat, but use energy from light, together with carbon dioxide and water to make glucose (food) through photosynthesis. They either use the glucose as an energy source, to build new tissue, or store it for later use. Plants have specially-adapted organs that allow them to obtain resources needed for photosynthesis. Describe ways in which plants obtain resources for photosynthesis. Explain why other organisms are dependent on photosynthesis. Sketch a line graph to show how the rate of photosynthesis is affected by changing conditions. Use a word equation to describe photosynthesis in plants and algae. Respiration is a series of chemical reactions, in cells, that breaks down glucose to provide energy and form new molecules. Most living things use aerobic respiration but switch to anaerobic respiration, which provides less energy, when oxygen is unavailable. Use word equations to describe aerobic and anaerobic respiration. Explain how specific activities involve aerobic or anaerobic respiration.	Seneca HW, in class teacher questioning, MCQ's, starter tasks	EOTT
Autumn Half-term 1	C3 Quantitative Chemistry	Chemists use quantitative analysis to determine the formulae of compounds and the equations for reactions. Given this information, analysts can then use quantitative methods to determine the purity of chemical samples and to monitor the yield from chemical reactions. Chemical reactions can be classified in various ways. Identifying different types of chemicalreaction allows chemists to make sense of how different chemicals react together, to establish patterns and to make predictions about the behaviour of other chemicals. Chemical equations provide a means of representing chemical reactions and are a key way for chemists to communicate chemical ideas.	1. Conservation Of Mass 2. Mass Changes 3. Concentration 4 - 7. The Mole 8. Percentage Yield (triple only) 9. Atom Economy(triple only) 10. Cocncentration 2 (triple only) 11. Gas Volumes (triple only)	Chemical formulas and equations. Sovents, solutes and solutions.	Seneca HW, in class teacher questioning, MCQ's, starter tasks	EOTT

Autumn 2	C4 Chemical Changes	Understanding of chemical changes began when people began experimenting with chemical reactions in a systematic way and organizing their results logically. Knowing about these different chemical changes meant that scientists could begin to predict exactly what new substances would be formed and use this knowledge to develop a wide range of different materials and processes. It also helped biochemists to understand the complex reactions that take place in living organisms. The extraction of important resources from the earth makes use of the way that some elements and compounds react with each other and how easily they can be 'pulled apart'.	1. Metal Oxides 2. Reactivity Of Metals 3. Extraction Of Metals 4. Displacement Reactions 5. Metals and Acids 6. Forming Salts 7. Salt Formation Required Practical. 8. Titration Calculations (2 lessons) 9. Titration Required Practical 10. Strong and Weak Acids 11. Electrolysis Introduction 12. Electrolysis Of Molten Conplounds 13. Extraction Of Aluminium 14. Electrolysis Of Aqueous Compounds 15. Electrolysis Required Practical	*Chemical Reactions, Acids and Alkalis. Oxidation- the gain of oxygen and loss of electrons* *Reduction- the loss of oxygen and gain of electrons* *Redox- oxidation and reduction occurring simultaneously* *Displacement- a more reactive element takes the place of a less reactive element* *Neutralisation- the reaction between an acid and alkali to form a salt and water* *Electrolysis- the splitting up of an ionic compound using electricity*	Seneca HW, in class teacher questioning, MCQ's, starter tasks	EOTT
Autumn 2	C5 Energy Changes	Energy changes are an important part of chemical reactions. The interaction of particles often involves transfers of energy due to the breaking and formation of bonds. Reactions in which energy is released to the surroundings are exothermic reactions, while those that take in thermal energy are endothermic. These interactions between particles can produce heating or cooling effects that are used in a range of everyday applications. Some interactions between ions in an electrolyte result in the production of electricity. Cells and batteries use these chemical reactions to provide electricity. Electricity can also be used to decompose ionic substances and is a useful means of producing elements that are too expensive to extract any other way.	1. Exothermic and Endothermic Reactions 2. Metal and Acid Required practical 3. Energy Profiles 4. Bond Energies (HT only) 5. Batteries and Cells (HT only) 6. Batteries and Cells (triple only) 7. Fuel Cells (triple only)	Electricity, Particles.	Seneca HW, in class teacher questioning, MCQ's, starter tasks	EOTT

Spring 1	B5 Homeostasis and Response	Cells in the body can only survive within narrow physical and chemical limits. They require a constant temperature and pH as well as a constant supply of dissolved food and water. In order to do this the body requires control systems that constantly monitor and adjust the composition of the blood and tissues. These control systems include receptors which sense changes and effectors that bring about changes. In this section we will explore the structure and function of the nervous system and how it can bring about fast responses. We will also explore the hormonal system which usually brings about much slower changes. Hormonal coordination is particularly important in reproduction since it controls the menstrual cycle. An understanding of the role of hormones in reproduction has allowed scientists to develop not only contraceptive drugs but also drugs which can increase fertility.	1. Homeostasis 2. Nervous system 3. The brain (triple only) 4. The eye (triple only) 5. RP6 Reaction time 6. Endocrine system 7. Control of blood glucose 8. Control of body temperature (triple only) 9. Control of water and nitrogen levels (triple only) 10. Hormones in reproduction 11. Contraception 12. Fertility treatments (HT only) 13. Feedback systems (HT only) 14. Plant hormones (triple only) 15. RP Effect of light/gravity on seedling growth (triple	The menstrual cycle prepares the female for pregnancy and stops if the egg is fertilised by a sperm. The developing foetus relies on the mother to provide it with oxygen and nutrients, to remove waste and protect it against harmful substances. Explain whether substances are passed from the mother to the foetus or not. Use a diagram to show stages in development of a foetus from the production of sex cells to birth. Describe causes of low fertility in male and female reproductive systems. Identify key events on a diagram of the menstrual cycle.	Seneca HW, in class teacher questioning, MCQ's, starter tasks	EOTT
Spring 1	C6 Rates	Chemical reactions can occur at vastly different rates. Whilst the reactivity of chemicals is a significant factor in how fast chemical reactions proceed, there are many variables that can be manipulated in order to speed them up or slow them down. Chemical reactions may also be reversible and therefore the effect of different variables needs to be established in order to identify how to maximise the yield of desired product. Understanding energy changes that accompany chemical reactions is important for this process. In industry, chemists and chemical engineers determine the effect of different variables on reaction rate and yield of product. Whilst there may be compromises to be made, they carry out optimisation processes to ensure that enough product is produced within a sufficient time, and in an energy-efficient wa	1. Rates Introduction 2. Collision Theory and Surface Area 3. Effect Of Temperature 4. Effect Of Concentration 5. Required Practcal - Effect Of Concentration 6. Effect Of Catalysts 7. Equilibrium	Particle Theory Disappearing cross experiment. Chemical Reactions.	Seneca HW, in class teacher questioning, MCQ's, starter tasks	EOTT

Spring 2	P5 Forces	The laws of gravity, elasticity, level and gears, describing motion and the pressure in fluids are all topics covered in the GCSE physics syllabus under 'Forces'. According to the syllabus specification, you must be able to: Recall typical values of speed for a person walking, running and cycling as well as the typical values of speed for different types of transportation systems Make measurements of distance and time and then calculate speeds of objects Calculate average speed for non-uniform motion Explain the vector–scalar distinction as it applies to displacement, distance, velocity and speed Draw distance–time graphs from measurements Apply Newton's three laws, with examples where appropriate Estimate stopping distances and reaction times Explain the dangers caused by large decelerations Describe and explain examples of momentum in an event, such as a collision	1. Forces syllabus topics included are: 2. Scalar and vector quantities 3. Contact and non-contact forces 4. Gravity 5. Forces and elasticity 6. Moments, levers and gears 7. Pressure in fluids 8. Describing motion 9. Forces, acceleration and Newton's Laws 10. Momentum	Motion Represent a journey on a distance-time graph. Describe quantitative relationship between average speed, distance and time (speed = distance ÷ time) Newton's laws Recognise forces as pushes or pulls Balanced and unbalanced forces Opposing forces and equilibrium Forces in action Units of force (newtons) Moment as the turning effect of a force Force-extension linear relation; Hooke's Law as a special case Forces: associated with deforming objects Work done and energy changes on deformation	Seneca HW, in class teacher questioning, MCQ's, starter tasks	EOTT
Summer 1	C7 Organic Chemistry	The chemistry of carbon compounds is so important that it forms a separate branch of chemistry. A great variety of carbon compounds is possible because carbon atoms can form chains and rings linked by C-C bonds. This branch of chemistry gets its name from the fact that the main sources of organic compounds are living, or once-living materials from plants and animals. These sources include fossil fuels which are a major source of feedstock for the petrochemical industry. Chemists are able to take organic molecules and modify them in many ways to make new and useful materials such as polymers, pharmaceuticals, perfumes and flavourings, dyes and detergents.	1. Alkanes 2. Fractional Distillation 3. Alkenes 4. Cracking 5. Combustion of Hydrocarbons 6. Alcohols (Triple only) 7. Carboxylic Acids and Esters (Triple only) 8. Polymers (Triple only) 9. Structure Of DNA (Triple only)	Chemical formaulae. Chemical Equations Chemical Reactions Combustion Seperating Mixtures Genetics	Seneca HW, in class teacher questioning, MCQ's, starter tasks	EOTT
Summer 1	C8 Chemical Analysis	Analysts have developed a range of qualitative tests to detect specific chemicals. The tests are based on reactions that produce a gas with distinctive properties, or a colour change or an insoluble solid that appears as a precipitate. Instrumental methods provide fast, sensitive and accurate means of analysing chemicals, and are particularly useful when the amount of chemical being analysed is small. Forensic scientists and drug control scientists rely on such instrumental methods in their work.	1. Formulations and Purity 2. Paper Chromatography 3. Gas Tests 4. Tests For Positive Ions 5. Tests for Negative Ions 6. Instrumental Analysis	Elements, Compounds, Mixtures Seperating Mixtures	Seneca HW, in class teacher questioning, MCQ's, starter tasks	EOTT
Revision and mocks						