Calendar	Big Question/Theme	Small Questions	Assessment Opportunities and Criteria. Teacher feedback point (TFP)	Homework
Term 1 Year 11 Topic B8 Exchange and transport in animals	How and why are substances transported around our bodies?	1)What substances need to be transported into and out of the body? 2)Why is the surface area: volume ratio important for exchange of substances? 3)How are the lungs adapted for gas exchange? 4)What are the components of blood? 5)How are the components of blood adapted for their function? 6)What are the components of the circulatory system? 7)How are blood vessels adapted for their function? 8)What is the structure of the heart? 9)How does the heart pump blood? 10)How do you calculate cardiac output? 11)Why do organisms need to respire? 12)What is the word equation for respiration and why is it an exothermic reaction? 13)What is the difference between aerobic and anaerobic respiration? **TRIPLE SCIENCE ONLY** **1. How do surface area, concentration and diffusion distance affect the rate of diffusion?** **2. What is Fick's Law?**	Each Ks4 module is followed by a common assessed task (CAT). This is comprised of a mixture of exam questions based on that topic. Exam questions are obtained from ExamWizard. Teacher will mark exam questions and provide a class feedback sheet. Students will NTG by responding to marking.	Homework is revision of the topic's knowledge organiser. Students will be quizzed twice weekly /10 on firefly. Often previously taught topics. Students will complete 2 high stakes quizzes in class per half term on current teaching topics. Student results will be recorded on a tracking sheet.

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Term 1 Year 11 Topic B9 Ecosystems and Material Cycles	How are organisms interlinked within ecosystems?	1)What is an ecosystem, community, population and habitat? 2)Why is interdependence in communities important? 3)How do you calculate abundance? 4)How can population size be estimated using a quadrat? 5)What are abiotic factors and how do they affect communities? 6)How does pollution affect communities? 7)How are belt transects used to measure the effect of abiotic factors on the distribution of organisms? 8)What are biotic factors? 9)How can competition and predation affect communities? 10)How are some organisms dependent on other species? 11)How does parasitism affect the survival of some organisms? 12)How does mutualism affect the survival of some organisms? 13)How does fish farming affect ecosystems? 14)How does the introduction of a new species affect biodiversity? 15)What is eutrophication and how does it affect ecosystems? 16)How can animal species be conserved? 17)How can animal conservation protect biodiversity? 18)How can reforestation protect animal biodiversity? 19)How does water cycled through an ecosystem? 20)How is potable drinking water produced? 21)How are fossil fuels formed? 22)How is carbon cycled through an ecosystem? 23)What is the role of decomposers in the carbon cycle? 24)Why do plants need nitrates? 25)How do farmers increase the amount of nitrates in the soil? 26)What is the role of bacteria in the nitrogen cycle? **TRIPLE SCIENCE ONLY** **27)What is a producer, consumer, predator, prey, trophic level, food chain, food web?** **28)How does energy transfer limit the length of a food chain?** **29)How do you calculate the efficiency of energy transfer between trophic levels?** **30)What does a pyramid of biomass show you?** **31)What are indicator species and how can they be used as evidence of pollution?** **32)How useful are indicator species as evidence of pollution?** **33)What is food security?** **34)What factors affect food security?** **35)What is sustainability?** **36)How can the rate of decomposition of food be reduced?** **37)How can the rate of decomposition of composting be increased?** **38)How can the rate of decay be calculated?**	Each Ks4 module is followed by a common assessed task (CAT). This is comprised of a mixture of exam questions based on that topic. Exam questions are obtained from ExamWizard. Teacher will mark exam questions and provide a class feedback sheet. Students will NTG by responding to marking.	Homework is revision of the topic's knowledge organiser. Students will be quizzed twice weekly /10 on firefly. Often previously taught topics. Students will complete 2 high stakes quizzes in class per half term on current teaching topics. Student results will be recorded on a tracking sheet.

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Term 1 Year 11 Topic SC22 Hydrocarbons **TRIPLE ONLY**	What are alkenes and alkanes?	**TRIPLE SCIENCE ONLY** What are the names, formula and structures of the four smallest alkanes? What functional group is present in all alkenes? How is the position of this functional group shown in alkene names? What products are formed by the complete combustion of hydrocarbons? How can bromine water be used to distinguish between alkanes and alkenes? What are the structures are the reactants and products when bromine and ethene react?	Each Ks4 module is followed by a common assessed task (CAT). This is comprised of a mixture of exam questions based on that topic. Exam questions are obtained from ExamWizard. Teacher will mark exam questions and provide a class feedback sheet. Students will NTG by responding to marking.	Homework is revision of the topic's knowledge organiser. Students will be quizzed twice weekly /10 on firefly. Often previously taught topics. Students will complete 2 high stakes quizzes in class per half term on current teaching topics. Student results will be recorded on a tracking sheet.

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Term 1 Year 11 Topic SC23 Alcohols and Carboxylic acids **TRIPLE ONLY**	What are alcohols and carboxylic acids?	**TRIPLE SCIENCE ONLY** 1. How are alcoholic drinks produced? 2. What chemical reaction occurs during fermentation? 3. How can we make alcohol solutions more concentrated? 4. What are the names, formulae and structures of the four smallest alcohols? 5. What functional group is present in all alcohols? 6. What are some chemical properties of alcohols? 7. How are carboxylic acids produced? 8. What are the names, formulae and structures of the first four carboxylic acids? 9. How does the functional group in all carboxylic acids influence their chemical properties?	Each Ks4 module is followed by a common assessed task (CAT). This is comprised of a mixture of exam questions based on that topic. Exam questions are obtained from ExamWizard. Teacher will mark exam questions and provide a class feedback sheet. Students will NTG by responding to marking.	Homework is revision of the topic's knowledge organiser. Students will be quizzed twice weekly /10 on firefly. Often previously taught topics. Students will complete 2 high stakes quizzes in class per half term on current teaching topics. Student results will be recorded on a tracking sheet.

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Term 1 Year 11 Topic CC13 SC17 Groups in the periodic table	How are molecules arranged into families and what are their uses?	1. What are the main properties of alkali metals? 2. How do alkali metals react with water? 3. Why do alkali metals have different reactivities? 4. How do the physical properties of halogens change down group 7? 5. How do you test for chlorine? 6. How do halogens react with metals? 7. How can displacement reactions be used to work out the reactivity of halogens? 8. How can we explain the reactivity of halogens? 9. What happens to halogen atoms and halide ions during displacement? 10. Why are Noble gases unreactive? 11. How can Noble gases be used? 12. What trends are there in the physical properties of the Noble gases?	Each Ks4 module is followed by a common assessed task (CAT). This is comprised of a mixture of exam questions based on that topic. Exam questions are obtained from ExamWizard. Teacher will mark exam questions and provide a class feedback sheet. Students will NTG by responding to marking.	Homework is revision of the topic's knowledge organiser. Students will be quizzed twice weekly /10 on firefly. Often previously taught topics. Students will complete 2 high stakes quizzes in class per half term on current teaching topics. Student results will be recorded on a tracking sheet.

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Term 1 Year 11 Topic SP10/CP 9 Electricity and Circuits	How is electricity used in everyday life?	1) State and draw circuit symbols. 2) Draw and describe series and parallel circuits. 3) Describe how current is measured. 4) Describe how potential difference is measured. 5) Define electrical resistance 6) What determines the resistance of different resistors? 7) How is energy transferred around a circuit? 8) What is charge? 9) How is electricity transferred around the UK? 10) What is the potential difference of a UK plug socket? 11) What is the purpose of each wire inside a plug? 12) What are the dangers of electricity?	Each Ks4 module is followed by a common assessed task (CAT). This is comprised of a mixture of exam questions based on that topic. Exam questions are obtained from ExamWizard. Teacher will mark exam questions and provide a class feedback sheet. Students will NTG by responding to marking.	Homework is revision of the topic's knowledge organiser. Students will be quizzed twice weekly /10 on firefly. Often previously taught topics. Students will complete 2 high stakes quizzes in class per half term on current teaching topics. Student results will be recorded on a tracking sheet.

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Term 1 Year 11 Topic SP11 **TRIPLE ONLY** Static Electricity	What are the uses and dangers of static electricity?	**TRIPLE SCIENCE ONLY** **1. What sort of charges are there on the particles of the atom?** **2. How can an insulator become charged using friction?** **3. How can an insulator gain an induced charge?** **4. Why is earthing needed?** **5. How does earthing work?** **6. How do insecticide sprayers work?** **7. What is an electric field?** **8. What do the field lines tell you about an electric field?** **9. How do electric fields help to explain static electricity effects?**	Each Ks4 module is followed by a common assessed task (CAT). This is comprised of a mixture of exam questions based on that topic. Exam questions are obtained from ExamWizard. Teacher will mark exam questions and provide a class feedback sheet. Students will NTG by responding to marking.	Homework is revision of the topic's knowledge organiser. Students will be quizzed twice weekly /10 on firefly. Often previously taught topics. Students will complete 2 high stakes quizzes in class per half term on current teaching topics. Student results will be recorded on a tracking sheet.

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Term 2 Year 11 Topic CC14 SC18 Rate of Reaction	How can different factors affect the speed of a reaction?	1. What changes can occur as a reaction proceeds? 2. How can we investigate rates of reaction? 3. How are graphs used to show rates of reaction? 4. What has to happen for two particles to react? 5. How does the speed of particles affect the rate of reaction? 6. Why do changes in temperature, concentration, surface area and pressure affect rates of reaction? 7. What is a catalyst? 8. How do catalysts work? 9. What are enzymes used for?	Each Ks4 module is followed by a common assessed task (CAT). This is comprised of a mixture of exam questions based on that topic. Exam questions are obtained from ExamWizard. Teacher will mark exam questions and provide a class feedback sheet. Students will NTG by responding to marking.	Homework is revision of the topic's knowledge organiser. Students will be quizzed twice weekly /10 on firefly. Often previously taught topics. Students will complete 2 high stakes quizzes in class per half term on current teaching topics. Student results will be recorded on a tracking sheet.

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Term 2 Year 11 Topic CC15 SC19 Rate of Reaction	Why do some reactions release heat whilst some absorb heat?	1. What are exothermic and endothermic reactions? 2. What are some examples of exothermic and endothermic reactions? 3. How can heat changes in solution be investigated? 4. How can endothermic and exothermic reactions be explained in terms of bonds? 5. How are exothermic and endothermic reactions modelled? 6. How are energy changes in reactions calculated (H)	Each Ks4 module is followed by a common assessed task (CAT). This is comprised of a mixture of exam questions based on that topic. Exam questions are obtained from ExamWizard. Teacher will mark exam questions and provide a class feedback sheet. Students will NTG by responding to marking.	Homework is revision of the topic's knowledge organiser. Students will be quizzed twice weekly /10 on firefly. Often previously taught topics. Students will complete 2 high stakes quizzes in class per half term on current teaching topics. Student results will be recorded on a tracking sheet.

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Term 2 Year 11 Topic CC16 SC20 Fuels	What is Crude oil and how is it used?	1. What are Hydrocarbons? 2. Why is Crude oil so useful? 3. Why is crude oil non-renewable? 4. How is crude oil separated? 5. What are the names and uses of the main fractions from crude oil? 6. What are the differences in the molecules found in different fractions from crude oil? 7. What is the main type of hydrocarbon found in crude oil? 8. What are the features of a homologous series of compounds? 9. Why do alkanes form a homologous series? 10. What happens during the complete combustion of a hydrocarbon? 11. What happens during the incomplete combustion of a hydrocarbon? 12. What problems does incomplete combustion cause? 13. Why do some hydrocarbon fuels release sulfur dioxide when they are used? 14. Why are oxides of nitrogen produced by engines? 15. What problems are caused by acid rain? 16. Why is Cracking needed? 17. What happens during the cracking of crude oil fractions? 18. What are the advantages and disadvantages of hydrogen and petrol as vehicle fuels?	Each Ks4 module is followed by a common assessed task (CAT). This is comprised of a mixture of exam questions based on that topic. Exam questions are obtained from ExamWizard. Teacher will mark exam questions and provide a class feedback sheet. Students will NTG by responding to marking.	Homework is revision of the topic's knowledge organiser. Students will be quizzed twice weekly /10 on firefly. Often previously taught topics. Students will complete 2 high stakes quizzes in class per half term on current teaching topics. Student results will be recorded on a tracking sheet.

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Term 2 Year 11 Topic CC17 SC21 Atmosphere	Why is our atmosphere changing and what are the consequences?	1. What are the names of some common gases produced by volcanoes? 2. What evidence is there for the composition of the Earth's early atmosphere? 3. How do scientists explain the formation of the oceans? 4. What are the names of some greenhouse gases? 5. How is the greenhouse effect caused? 6. What is the link between fossil fuel combustion and climate change?	Each Ks4 module is followed by a common assessed task (CAT). This is comprised of a mixture of exam questions based on that topic. Exam questions are obtained from ExamWizard. Teacher will mark exam questions and provide a class feedback sheet. Students will NTG by responding to marking.	Homework is revision of the topic's knowledge organiser. Students will be quizzed twice weekly /10 on firefly. Often previously taught topics. Students will complete 2 high stakes quizzes in class per half term on current teaching topics. Student results will be recorded on a tracking sheet.

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Term 2 Year 11 Topic SC24 Polymers **TRIPLE ONLY**	Can you describe how different polymers including biological ones are formed?	**TRIPLE SCIENCE ONLY** 1. What are addition polymers? 2. What are condensation polymers? 3. What is the composition of biological polymers? 4. How are the uses of a polymer related to its properties? 5. What problems are associated with making and disposing polymers? 6. What are some advantages and disadvantages of recycling polymers?	Each Ks4 module is followed by a common assessed task (CAT). This is comprised of a mixture of exam questions based on that topic. Exam questions are obtained from ExamWizard. Teacher will mark exam questions and provide a class feedback sheet. Students will NTG by responding to marking.	Homework is revision of the topic's knowledge organiser. Students will be quizzed twice weekly /10 on firefly. Often previously taught topics. Students will complete 2 high stakes quizzes in class per half term on current teaching topics. Student results will be recorded on a tracking sheet.

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Term 2 Year 11 Topic SC25 Qualitative analysis: Testing for ions **TRIPLE ONLY**	How can positive and negative ions be identified?	**TRIPLE SCIENCE ONLY** How are metal ions identified using flame tests? Why might chemists analyse substances using machines instead of chemical tests? How is the information from flame photometers used? Why must the test for an ion only detect that ion? How are metal ions identified using sodium hydroxide solution? How are ammonium ions and ammonia detected? How are carbonate ions and carbon dioxide detected? How are sulfate ions detected? How are halide ions identified?	Each Ks4 module is followed by a common assessed task (CAT). This is comprised of a mixture of exam questions based on that topic. Exam questions are obtained from ExamWizard. Teacher will mark exam questions and provide a class feedback sheet. Students will NTG by responding to marking.	Homework is revision of the topic's knowledge organiser. Students will be quizzed twice weekly /10 on firefly. Often previously taught topics. Students will complete 2 high stakes quizzes in class per half term on current teaching topics. Student results will be recorded on a tracking sheet.

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Term 2 Year 11 Topic SC26 Bulk and surface properties of matter including nanoparti cles **TRIPLE ONLY**	How does the property of a material link to its uses?	**TRIPLE SCIENCE ONLY** 1. What are ceramics? 2. What are ceramics, polymers and metals like? 3. How are materials chosen for a given use? 4. What are composite materials? 5. What are composite materials like? 6. How are materials including composite materials chosen for a given use? 7. Why do nanoparticulate materials have different properties from bulk materials? 8. What are some of the uses of nanoparticles? 9. What are the possible risks from nanoparticles?	Each Ks4 module is followed by a common assessed task (CAT). This is comprised of a mixture of exam questions based on that topic. Exam questions are obtained from ExamWizard. Teacher will mark exam questions and provide a class feedback sheet. Students will NTG by responding to marking.	Homework is revision of the topic's knowledge organiser. Students will be quizzed twice weekly /10 on firefly. Often previously taught topics. Students will complete 2 high stakes quizzes in class per half term on current teaching topics. Student results will be recorded on a tracking sheet.

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Term 2 Year 11 Topic SP12/CP 10 Magnetism and the Motor effect	How do magnetic fields interact?	1) What is a permanent magnet? 2) What is a temporary/induced magnet? 3) How do the poles of a magnet interact? 4) What are the 4 magnetic materials? 5) How is an electromagnet constructed? 6) How can the field around an electromagnet be increased? 7) How can the Earth's magnetic field be detected? 8) What can be used to show a magnetic field is present? **Triple only** **1. Label and describe the parts of an electric motor and a relay.** **2. What rule is used to determine the direction of the magnetic field, motion and current in an electric motor?** **3. How can a motor's speed be increased?** **4. What is meant by magnetic flux density?**	Each Ks4 module is followed by a common assessed task (CAT). This is comprised of a mixture of exam questions based on that topic. Exam questions are obtained from ExamWizard. Teacher will mark exam questions and provide a class feedback sheet. Students will NTG by responding to marking.	Homework is revision of the topic's knowledge organiser. Students will be quizzed twice weekly /10 on firefly. Often previously taught topics. Students will complete 2 high stakes quizzes in class per half term on current teaching topics. Student results will be recorded on a tracking sheet.

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Term 2 Year 11 Topic CP11/SP 13 Electromagnetic Induction	How can a magnetic field be formed using electricity?	1) How can a magnetic field produce a current through a wire? 2) How can the current through the wire by the magnetic field be increased? 3) What are the factors which affect the size of current through a wire? 4) What is the purpose of transformers within the national? 5) Why is a high voltage used for the national grid? 6) How can the power of a transformer be determined? **Triple only:** **1. Determine the ratios used to describe changes with input and output of transformers** **2. Explain how the current is related to the size of the magnetic field.** **3. Describe how the currents direction through a solenoid affects the magnetic field and force's action**	Each Ks4 module is followed by a common assessed task (CAT). This is comprised of a mixture of exam questions based on that topic. Exam questions are obtained from ExamWizard. Teacher will mark exam questions and provide a class feedback sheet. Students will NTG by responding to marking.	Homework is revision of the topic's knowledge organiser. Students will be quizzed twice weekly /10 on firefly. Often previously taught topics. Students will complete 2 high stakes quizzes in class per half term on current teaching topics. Student results will be recorded on a tracking sheet.

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Term 2 Year 11 Topic CP12/SP 14	How do the particles within matter describe the energy changes between states.	1) Draw the states of matter as particle models 2) Describe the properties of each state of matter 3) What are the changes of states between matter called? 4) How does the energy of the particles change with temperature? 5) How can the density of an irregular shaped object be determined experimentally? 6) How does the line of a graph show a change of state? 7) Define the specific heat capacity of a substance. 8) Define the specific latent heat of a substance. 9) Use calculations to determine the energy changes of a substance 10) Explain how the pressure of a gas is produced. 11) Explain how the pressure of a gas can be changed. **Triple Only:** **1. Explain why the changes of temperature of a gas changes the volume of the gas.** **2. Describe how the volume of a gas affects the pressure within a container** **3. Explain why a wheel on a car may measure a high pressure once driven.**	Each Ks4 module is followed by a common assessed task (CAT). This is comprised of a mixture of exam questions based on that topic. Exam questions are obtained from ExamWizard. Teacher will mark exam questions and provide a class feedback sheet. Students will NTG by responding to marking.	Homework is revision of the topic's knowledge organiser. Students will be quizzed twice weekly /10 on firefly. Often previously taught topics. Students will complete 2 high stakes quizzes in class per half term on current teaching topics. Student results will be recorded on a tracking sheet.

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Term 2 Year 11 Topic CP13/SP 15	How do forces affect the energy within a stretched object?	1. How do forces cause object to change shape? 2. What is the difference between elastic and inelastic deformation? 3. What is the relationship between force and extension when an object is deformed? 4. How can you calculate the density of a substance of an unknown volume? 5. How can you conduct an experiment to investigate the extension and work done when applying forces to a spring? 6. What is the spring constant? 7. What is the equation that links force, extension and the spring constant? 8. Can you calculate the energy transferred in a spring?	Each Ks4 module is followed by a common assessed task (CAT). This is comprised of a mixture of exam questions based on that topic. Exam questions are obtained from ExamWizard. Teacher will mark exam questions and provide a class feedback sheet. Students will NTG by responding to marking.	Homework is revision of the topic's knowledge organiser. Students will be quizzed twice weekly /10 on firefly. Often previously taught topics. Students will complete 2 high stakes quizzes in class per half term on current teaching topics. Student results will be recorded on a tracking sheet.