Subject	Year 11 Core Knowledge – Autumn/Summer term	How to support students' learning
Chemistry	**Autumn Term** **Organic Chemistry –** 1. Describe crude oil as a mixture of hydrocarbons. 2. Organic Chemistry - Recall the names of structural formulae and molecular formulae of the first 4 alkanes. 3. Describe fractional distillation as the separation of hydrocarbons in crude oil based on difference in boiling point. 4. Recall the names of and the location of different fractions in the fractionating column. 5. Identify patterns in properties with relation to; boiling point, molecular size, viscosity, flammability and vaporisation relating to the position in the fractionating column. 6. Recall the reason why cracking takes place. 7. Describe cracking including conditions required to crack a hydrocarbon. 8. Determine the products of cracking a given long chain hydrocarbon to include the alkane and alkene formed. 9. Recall the colour change of bromine water when added to an alkene. 10. Describe the differences between complete and incomplete combustion of hydrocarbons. 11. Recall the test and result for carbon dioxide gas. 12. Describe the structure and formula of alkenes. (Triple only). 13. Describe the reactions of alkenes (hydrogenation, halogenation and hydration). (Triple only). 14. Describe alcohols to include the functional groups, methods of synthesis (hydration of alkene and fermentation) and the use of	Students follow the AQA specification. If students are studying for 'Combined Science' we follow AQA trilogy. Students can set themselves questions on educake using the revision wizard. They can also use their science revision guide which can be purchased on the school shop. In addition, the appropriate BBC bitesize links for topics are included below: Autumn -Triple - https://www.bbc.co.uk/bitesize/topics/ztsyh39 Combined - https://www.bbc.co.uk/bitesize/topics/z9488mn

	acidified potassium dichromate to test for alcohols. (Triple only). 15. Describe carboxylic acids and their synthesis by oxidation of alcohols. (Triple only). 16. Describe the formation of esters by the reaction of alcohols and carboxylic acids and name the esters formed. (Triple only). 17. Describe addition polymerisation. (Triple only). 18. Describe condensation polymerisation. (Triple only). 19. Describe amino acids. (Triple only). 20. Describe DNA and other naturally occurring polymers. (Triple only). **Spring Term** **Chemical Analysis –** 21. Define pure substances. 22. Describe formulations as being mixtures with a useful purpose/product. 23. Define stationary phase and mobile phase in chromatography. 24. Describe the method for chromatography to include reasons for each step. 25. Demonstrate how to calculate Rf and explain what Rf means. 26. Describe the test for hydrogen. 27. Describe the test for oxygen. 28. Describe the test for carbon dioxide. 29. Describe the test for chlorine. 30. Describe how to carry out flame tests. (Triple only). 31. Describe the use of hydroxides to determine metal cations, recalling the colours of precipitate. (Triple only). 32. Describe the test for Carbonate ions using dilute acid and limewater to confirm CO2 is produced. (Triple only). 33. Describe how acidified silver nitrate can be used to detect halide ions, recalling the colour of precipitates. (Triple only).	

	34. Describe the use of barium chloride solution to determine the presence of sulphate ions, recalling the colour of precipitate produced. (Triple only). 35. Describe flame emissions spectroscopy and interpret emission spectra using given reference spectra. (Triple only).	