Tenbury High Ormiston Academy Vision, Values and Principles

Half Term 3: Chemical changes and Energy changes **Substantive Knowledge:** Draw and label exothermic reaction profile with activation energy, reactants, products and energy released. Draw and label an endothermic reaction profile with activation energy, reactants, products and energy absorbed. Identify examples of exothermic and endothermic reaction. Describe a method on how to measure temperature change. T – Describe how a battery works. T- Interpret data evaluate the use of cells. T- Evaluate the use of hydrogen fuel cells in comparison to recharge cells and batteries. T (HT) – Write half equations for the electrode reactions in hydrogen fuel cells **Disciplinary Knowledge:** Analysis of data, Describing a method, Identifying variables, HT – Calculate bond energies to identify exothermic or endothermic reactions.	Skim and Scan of source information Decoding terms Etymology of key terms
	Endothermic, Exothermic, Activation energy, Reactants, Products Catalysts, Overall energy change , Reaction profile, Rechargeable cells, Fuel cells, Chemical cells, Battery, Alkaline batteries
	Recall questions to start every lesson Recall test Review sheet
	Revision Card Recall test Review sheet Repetition of use of revision cards for end of unit assessment
Half Term 4: **Quantitative Chemistry substantive knowledge** Describe the law of conservation of mass. Explain change in mass of a reactions. Explain any observed changes in mass in non-enclosed systems given the balanced symbol equation. Describe how chemical amounts are measured in moles, Describe the number of atoms, molecules or ions in a mole of a given substance is the Avogadro constant. Use balanced symbol equations to calculate mass of reactants and products. Balance an equation given the masses of reactants and products. Describe with examples what is meant by a limiting reactant. Explain the effects of a limiting quantity of reactants on the amount of product. Describe how concentration of solutions can be measured. Explain how the mass of a solute and the volume of a solution is related to the concentration of the solution. HT - Describe why it is not always possible to obtain the calculated amount of product. Describe atom economy. Describe how equal amounts in moles of gases occupy the same volume under the same conditions of temperature and pressure. **Quantitative Chemistry Disciplinary knowledge** write and balance symbol equations.,calculate relative formula mass. calculate percentage by mass using relative formula masses, how to calculate the mass of one mole of substance, how to calculate the number of moles in a given mass given the relative formula mass of a substance, Change the subject of a mathematical equation, calculate the mass of solute in a given volume of solution of known concentration, calculate percentage yield, calculate percentage atom economy, calculate the volume of gas at room temp and pressure from its mass and relative formula mass, calculate volumes of gaseous reactants and products from a balanced equation and a given volume of a gaseous reactant and product	Skim and Scan of source information Decoding terms Etymology of key terms
	Actual yield, Atom economy, Avogadro constant, Avogadro's law Concentration, Conservation of mass, Limiting reactant, Mole, Percentage by mass, Percentage yield, Relative formula mass, Theoretical yield, Thermal decomposition, uncertainty
	Recall questions to start every lesson Recall test Review sheet Term 2 assessment on units 1,2, and 4
	Revision Card Recall test Review sheet Repetition of use of revision cards for end of unit assessment