Learning Tracker; Developing Fuels

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| **SPECIFICATION HEADINGS** | **R** | **Y** | **G** |
| **Formulae, equations and amount of substance** |  |  |  |
| Write balanced chemical equations |  |  |  |
| Use terms from specification statement (a) with confidence. |  |  |  |
| Calculating with volumes of gases |  |  |  |
| Use the ideal gas equation |  |  |  |
| Calculating enthalpy changes using a variety of data |  |  |  |
| Techniques used to measure gas volumes |  |  |  |
| **BONDING AND STRUCTURE** |  |  |  |
| Bonding in organic compounds (σ and π bonds) |  |  |  |
| Molecular structure and representing 3D shapes |  |  |  |
| Shapes of Molecules |  |  |  |
| **ENERGETICS** |  |  |  |
| Recall definitions of different enthalpy changes (spec statement (d)) |  |  |  |
| Understand term average bond enthalpy and factors affecting strength of bonds |  |  |  |
| Recall bond breaking is endothermic and bond making is exothermic |  |  |  |
| Recall techniques and procedures for measuring energy transferred |  |  |  |
| Understand how to use enthalpy cycles and Hess’ law |  |  |  |
| **KINETICS** |  |  |  |
| Recall terms associated with catalysts |  |  |  |
| Explain a simple model for heterogeneous catalysis |  |  |  |
| Describe use of catalysts in cracking |  |  |  |
| Recall technique for cracking a hydrocarbon |  |  |  |
| **INORGANIC CHEMISTRY AND THE PERIODIC TABLE** |  |  |  |
| Describe the origin of atmospheric pollutants from a variety of sources |  |  |  |
| Explain the environmental implications of these pollutants and methods for reducing them |  |  |  |
| **ORGANIC FUNCTIONAL GROUPS** |  |  |  |
| Recall terms associated with types of organic molecule (spec statement (l)) |  |  |  |
| Recall the naming rules, general formula and structural formula for alkanes, alkenes, cycloalkanes and alcohols |  |  |  |
| **ORGANIC REACTIONS** |  |  |  |
| Write balanced combustion equations (complete and incomplete) |  |  |  |
| Recall addition reactions of alkenes and relative reactivity of alkanes |  |  |  |
| **POLYMERS** |  |  |  |
| Describe addition polymerisation |  |  |  |
| Draw polymers from given monomers and vice versa |  |  |  |
| **ORGANIC MECHANISMS** |  |  |  |
| Use curly arrows to draw reaction electrophilic addition mechanism |  |  |  |
| Explain how addition of other anions confirms the model of the mechanism |  |  |  |
| **ISOMERISM** |  |  |  |
| Draw different types of structural formulae |  |  |  |
| Define structural isomerism and draw structural isomers |  |  |  |
| Define stereoisomerism and draw/name E/Z or cis/trans isomers |  |  |  |
| **SUSTAINABILITY** |  |  |  |
| Explain the benefits and risks associated with fossil fuels and alternatives |  |  |  |