

Year 12 Chemistry T2

Learning Programme 4

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| The LORIC skill focus for his LP is: INITIATIVE. The Moral Virtues focus for this LP are: INTEGRITY and GRATITUDE. Integrity - Having strong moral principles. Gratitude - Feeling and expressing thanks. What will I be learning about in this Learning Programme? How energy within a chemical system changes during chemical reactions. Where have I seen this learning before? Definition of enthalpy, endothermic, exothermic, closed system, standard conditions. What could I use it for? Year 13 chemistry in Born Haber cycles, reaction rates and equilibrium. | | | Literacy: <ul style="list-style-type: none">Capital letters must be used at the start of sentences and for the first letter of proper nounsFull stops must be used at the end of a sentenceQuestion marks must be used at the end of a questionApostrophes should only be used for possession or omissionDays of the week and months must be spelled correctlyKey words must be spelled correctly |
| In LP4.1, I will know: | 10/03/25 - (WK 2) | Key Vocabulary | Homework |
| how to determine enthalpy changes directly from appropriate experimental results, including use of the relationship $q = mc\Delta T$; how to describe Hess' law for construction of enthalpy cycles and calculations to determine indirectly enthalpy changes from unfamiliar enthalpy cycles. | | Energy | Enthalpy change questions |
| In LP4.2, I will know: | 17/03/25 - (WK 1) | Key Vocabulary | Homework |
| how to describe the effect of concentration, including the pressure of gases, on the rate of a reaction, in terms of frequency of collisions; how to calculate reaction rate from the gradients of graphs measuring how a physical quantity changes with time; how to explain the role of a catalyst in increasing reaction rate without being used up by the overall reaction. | | Frequency | Rate of Reaction questions |
| In LP4.3, I will know: | 24/03/25 - (WK 2) | Key Vocabulary | Homework |
| how to explain the role of a catalyst in allowing a reaction to proceed via a different route with lower activation energy, as shown by enthalpy profile diagrams; how to explain the role of a catalyst in allowing a reaction to proceed via a different route with lower activation energy, as shown by enthalpy profile diagrams. Extended Task. | | Catalyst | Catalyst and RoR questions |
| In LP4.4, I will know: | 31/03/25 - (WK 1) | Key Vocabulary | Homework |
| how to explain that catalysts have great economic importance and benefits for increased sustainability by lowering temperatures and reducing energy demand from combustion of fossil fuels with resulting reduction in CO2 emissions; how to calculate reaction rate from the gradients of graphs measuring how a physical quantity changes with time. | | Equilibrium | Le Chateliers Principle questions |
| In LP4.5, I will know: | 21/04/25 - (WK 2) | Key Vocabulary | Homework |
| how to list and describe the techniques and procedures used to investigate changes to the position of equilibrium for changes in concentration and temperature; | | Concentration | Equilibrium in Industry based questions |
| In LP4.6, I will know: | 28/04/25 - (WK 1) | Key Vocabulary | Homework |
| how to give expressions for the equilibrium constant, Kc for homogeneous reactions and calculations of the equilibrium constant, Kc from provided equilibrium concentrations. Extended Task. | | Homogeneous | Equilibrium constant questions |
| In LP4.7, I will know: | 05/05/25 - (WK 2) | Key Vocabulary | Homework |
| how to explain the importance to the chemical industry of a compromise between chemical equilibrium and reaction rate in deciding the operational conditions. | | Heterogeneous | Equilibrium constant questions |
| Resources to support learning: Revision booklets/Text book. MaChem Guy on YouTube | | | |
| FFET Award Challenge for this Learning Programme: Independently complete a past paper | | | |

PRT Task 1

PRT Task 2