

Access to H.E. National Programme Unit



Unit Title:	Energetics		
Graded Unit Code:	GA33CHE12	Ungraded Unit Code:	UA33CHE12
Pathway(s):	Science and Engineering		
Module(s):	Chemistry		
Level:	3	Credit Value:	3
Valid from:	1 st August 2019	Valid to:	31 st July 2028

The following QAA grade descriptors must be applied if you are delivering the graded version of this unit:

1	Understanding of the subject
3	Application of skills
7	Quality

LEARNING OUTCOMES	ASSESSMENT CRITERIA
The learner will:	The learner can:
1. Understand that chemical reactions are accompanied by energy changes	1.1 Identify endothermic and exothermic reactions
	1.2 Explain why reactions are endothermic or exothermic
	1.3 Perform simple calorimetric experiments to determine ΔH values
2. Understand specified enthalpy changes	2.1 Explain the meaning of the terms enthalpy of combustion and enthalpy of formation
	2.2 Apply Hess's Law to calculate ΔH values of a range of reactions from given data on standard enthalpies of combustion and of formation (e.g. for methane)
	2.3 Calculate ΔH values of a range of reactions from given data on standard bond enthalpies

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LEARNING OUTCOMES	ASSESSMENT CRITERIA
The learner will:	The learner can:
	2.4 Evaluate the accuracy of the ΔH values calculated from standard bond enthalpies and from calorimetry, compared to those calculated from standard enthalpies of combustion or formation
3. Understand the usefulness of the Born-Haber cycle on enthalpy calculations.	<p>3.1 Define the following terms:</p> <ul style="list-style-type: none"> a) enthalpy of formation b) ionisation enthalpy c) enthalpy of atomisation of an element and of a compound d) bond dissociation enthalpy e) electron affinity f) lattice enthalpy g) enthalpy of hydration h) enthalpy of solution <p>3.2 Draw Born-Haber cycles for a range of binary compounds (e.g. NaBr, CaCl₂) to calculate unknown enthalpy values when given the other enthalpy values</p>