Changing lives through learning

Access to Higher Education Unit

This unit forms part of an Access to HE Diploma. If delivering the graded version of this unit, please refer to the Provider Handbook for details on grading descriptors and the application of these across units within your programme.

Unit Title: Energetics

Graded Unit Reference Number: GA33CHE12

Ungraded Unit Reference Number: UA33CHE12

Module: Chemistry

Level: Three (3)

Credit Value: Thee (3)

Minimum Guided Learning Hours: 30

Learning Outcome (The Learner will):	Assessment Criterion (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
	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

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3.	Understand the usefulness of the Born-Haber cycle on enthalpy calculations	3.1 Define the following terms: 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
		3.2 Draw Born-Haber cycles for a range of binary compounds (e.g. NaBr, $CaCl_2$) to calculate unknown enthalpy values when given the other enthalpy values

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