

Access to H.E. National Programme Unit



Unit Title:	The Transition Elements		
Graded Unit Code:	GA33CHE15	Ungraded Unit Code:	GA33CHE15
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. Know the definition of transition element	1.1 Write the configuration of a transition element and its ion limited to the series scandium to zinc
2. Recognise that transition elements have characteristic properties.	2.1 Describe the properties: variable oxidation state, catalytic activity, coloured ions and complex formation
	2.2 Using specific examples, explain how transition metals or their complexes are able to act as homogenous and heterogeneous catalysts
	2.3 Explain why transition metal complexes are coloured
3. Understand the common reactions of the ions Cu ²⁺ , Co ²⁺ , Cr ³⁺ and Fe ³⁺ .	For each of the ions Cu ²⁺ , Co ²⁺ , Cr ³⁺ and Fe ³⁺ , carry out practical investigations of the reactions, and write the observations and the equations:
	3.1 When each ion reacts with aqueous ammonia

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LEARNING OUTCOMES	ASSESSMENT CRITERIA
The learner will:	The learner can:
	3.2 When each ion reacts with aqueous sodium hydroxide
4. Know the concept of oxidation and reduction in terms of electron transfer.	4.1 Define oxidation and reduction in terms of electron transfer
	4.2 Construct redox half-equations for a variety of species, including oxygen-containing species which involve acidification
	4.3 Apply half-equations to balance equations of redox reactions, including oxygen-containing species which involve acidification