CC11 Obtaining and Using Metals

Topic Progression Checklist

I know this → colour green	I'm not sure → colour yellow	I don't know this → colour red

Subtopics and Learning Objectives	Start	End
CC11a Reactivity		
Describe the reactions of common metals with water and acids.		
Describe the reactions of metals with salt solutions.		
H Explain why displacement reactions are redox reactions.		
Deduce the order of metals in the reactivity series from their reactions with water, acids and salt solutions.		
Explain the reactivity series in terms of the tendency of different metal atoms to form cations.		
CC11b Ores		
Recall the meaning of the term 'ore'.		
Recall some metals that are found uncombined in the Earth's crust.		
Explain how and why some metals are extracted from their ores by heating with carbon.		
Explain how and why some metals are extracted from their ores by electrolysis.		
H Describe two biological methods of metal extraction.		
H Evaluate biological methods of metal extraction.		
CC11c Oxidation and Reduction		
H Explain why reactions occurring at the electrodes during electrolysis are redox reactions.		
Describe the meanings of oxidation and reduction in terms of oxygen.		
Explain which substance has been oxidised and which substance has been reduced in a reaction.		
Recall that all metals are extracted by reduction of their ores.		
Explain how the position of a metal in the reactivity series is related to its resistance to oxidation.		
CC11d Life Cycle Assessment and Recycling		
State the advantages and disadvantages of recycling a metal.		
Describe a process where a material or product is recycled for a different use.		
Evaluate the advantages and disadvantages of recycling a material or product to decide whether recycling is a viable option.		
Describe the four stages in carrying out a life cycle assessment (LCA) of a material or product.		
Evaluate data from a life cycle assessment of a material or product.		

CC12 Reversible Reactions and Equilibria

Topic Progression Checklist

I know this → colour green	I'm not sure → colour yellow	I don't know this → colour red

Subtopics and Learning Objectives	**Start**	**End**
CC12a Dynamic Equilibrium		
Describe what happens in reversible reactions.		
Explain the use of the symbol ⇌ in chemical equations.		
Explain what is meant by dynamic equilibrium.		
Describe the formation of ammonia.		
State the conditions used for the Haber process.		
H Describe how changing the temperature, pressure and concentration all affect the relative amount of substances in an equilibrium mixture.		