

Map of the module: *The Steel Story*

This shows the relationship between the Chemical Storylines, the Activities and the Chemical Ideas. To aid planning, laboratory-based practical work is indicated by (P), activities involving IT skills are indicated by (IT) and those developing study skills by (S).

Chemical Ideas references in *italics* are covered in earlier modules and are included in synoptic learning outcomes for this module in the specifications. Emphasis in teaching and learning should be on the **new** (non-italicised) sections of Chemical Ideas. The degree to which revisited Chemical Ideas are studied will depend on the needs of individual students.

ACTIVITIES	CHEMICAL STORYLINE	CHEMICAL IDEAS
SS1.1 How much copper is there in brass? (P) SS1.2 How much manganese is there in a nail? (P)	SS1 WHAT IS STEEL?	6.7 Where does colour come from? 1.1, 1.2 , <i>Measuring amounts of substances</i> 1.3 9.1 <i>Oxidation and reduction</i> 3.1 <i>Chemical bonding (section on naming inorganic compounds)</i>
SS2 How much iron is there in dried thyme? (P)	SS2 FROM IRON TO STEEL	1.5 <i>Concentration of solutions</i> 5.1 <i>Ions and solids in solution (section on writing ionic equations)</i> 6.1 <i>Light and electrons (section on atomic emission spectra)</i> 15.1 The operation of a chemical manufacturing process
SS3.1 Simple electrochemical cells (P) SS3.2 Further electrochemical cells (P) SS3.3 Using electrode potentials SS3.4 Predicting the feasibility of redox reactions (P)	SS3 STEEL FOR A PURPOSE	9.2 Redox reactions and electrode potentials 9.3 Predicting the direction of redox reactions 11.5 The d block: characteristics of transition metals (section on variable oxidation states)
	SS4 RECYCLING STEEL	
SS5.1 Reactions of some transition metal ions (P) SS5.2 Formulae and colours of some transition metal compounds SS5.3 How do transition metal compounds act as catalysts? (P)	SS5 PARTNERS IN STEEL	11.1 <i>Periodicity (section on the s, p, d and f blocks)</i> 3.1 <i>Chemical bonding (section on formulae of ions and ion charge linked to position in the Periodic Table)</i> 2.4 <i>Electronic structure: shells and sub-shells</i> 11.5 The d block: characteristics of transition metals 11.6 The d block: complex formation 10.5 <i>What is a catalyst?</i> 10.6 <i>How does a catalyst work?</i>
SS6 Check your knowledge and understanding (S)	SS6 SUMMARY	

As well as the above, synoptic learning outcomes for **SS** also state that students should be able to carry out calculations involving volumes of gases (**Chemical Ideas 1.4**) and also perform calculations involving percentage yields (**Chemical Ideas 15.7**).