

Map of the module: The Materials Revolution

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
	MR1 DESIGNING MATERIALS	
MR2.1 Naming nylons MR2.2 Making nylon (P) MR2.3 Taking nylon apart (P) MR2.4 Investigating an amine (P) MR2.5 Making a liquid crystal (P) MR2.6 Hydrolysing amides and esters (P)	MR2 MAKING AND BREAKING POLYMERS	13.3 <i>Carboxylic acids and their derivatives</i> 13.4 <i>The –OH group in alcohols, phenols and acids</i> 13.8 Amines and amides 5.3 <i>Bonds between molecules: temporary and permanent dipoles</i> 5.4 <i>Bonds between molecules: hydrogen bonding</i> 3.1 <i>Chemical bonding (section on electronegativity and bond polarity)</i> 13.5 <i>Esters</i>
MR3 Paper or plastic? Which is better for the environment?	MR3 RE-USE OR REFUSE?	15.10 Green chemistry and recycling
MR4.1 Bubble gum – or bubble glass? (P) MR4.2 Using spaghetti to model polymer structure (P)	MR4 MATERIALS WITH UNUSUAL PROPERTIES	5.7 Polymer properties by design
MR5 Check your knowledge and understanding	MR5 SUMMARY	