Topic: KS3 Thermoset & Thermoplastics		**Duration: 6 lessons**	**Composite: Topic & Test**
Key vocabulary:	**Core knowledge Components**	**Powerful knowledge components crucial to commit to long term memory**	**Links to previous and future topics**
Thermoset Thermoplastic Extrusion Lamination Liquid solvent cement Moulding Vacuum Forming Fume extraction Manufacture Quality Control Quality Assurance	1. Health and safety – What is COSHH? – Relate to their own use of Liquid Solvent Cement and correct use of PPE. 2. Fume extraction. – Why is this an important factor to working safely? 3. Recycling – What are the 6R's? What's your view on 'The war on plastic isn't working' video link? 4. Laminated keyring – Making activity. How do we laminate acrylic successfully? If we had more time to develop mini project, what could you do to develop it? 5. What are some school-based methods of shaping plastics? (Acrylic and HIPS) – including extrusion, vacuum forming, blow moulding demonstrations. 6. What is cross filing and draw filing? 7. How many methods are their to finishing plastic edges? Cover use of wet 'n' dry paper, buffing and polishing, using a cabinet scraper, router, flame polishing. (Cover methods of application, advantages and disadvantages of each process) 8. Discuss manufacturing lines and design one to manufacture next small practical project. What is QA/QC? 9. Discuss the purpose of jigs and design & make one to assist with the manufacture of the next practical project. 10. Practical – Twizzle sticks – manipulating a thermoplastic using a heat process.	• COSHH regulations and chemical storage. • Duel coding – recognising safety symbols and their meanings • Definitions of Thermoplastics and Thermoset plastic. • Recycling and disposal of specific and familiar plastic products – What? How? Where? Think hard?? Do you do this correctly in your home? • Manufacturing methods. • Process of manufacture including QA/QC	• This topic supports the learning of correct health and safety procedures when completing any practical work or working in any practical environment. • It prepares students for their next practical project when using different equipment but following the same risk assessment criteria. Links to CAD/CAM module in year 8. Test – classification of materials

Topic: KS3 Composites, Smart & Modern materials		**Duration: 6 Lessons**	**Composite:** **Topic & Test**
Key vocabulary:	**Core knowledge Components**	**Powerful knowledge components crucial to commit to long term memory**	**Links to previous and future topics**
Biomimicry Biometrics Stereotypical Composite Modern Smart Concept Inspiration Innovation Iteration Consumer Proto-type Invention	1. What is biomimicry? 2. What are Biometrics? 3. What is meant by the term 'Stereotypical response'? 4. What successful products are made with Composite materials? 5. What successful products are made with Smart materials? 6. What successful products are made with Modern materials? 7. Think / Do activity – Design a product in a can using a specific material type chosen by the student. 8. How do I develop an initial idea? 9. How do I present an idea to attract the consumer? 10. Looking at the successes & failures of James Dyson	• The abilities and purposes of the following materials: Smart, Modern and Composite. • How nature influences successful design. • How design iteration is key for product improvement. • How to get inspiration for innovative design. • About creating a proto-type and successful invention.	Designing a product made from a selection of materials will be easier now having had previous experience with 3 different material areas. Links to – New and emerging technologies in year 8 Test – Definitions / explanations of each category along with being able to describe a product example.