

Topic/Unit Focus	1			2			Revision		
POLYMERS	R	A	G	R	A	G	R	A	G
Thermoforming plastics (acrylic, HDPE, PVC etc)									
Thermosetting plastics (Epoxy resin, Urea-formaldehyde etc)									
Bio plastics (corn starch)									
Stock forms									
Environmental impact, cultural and sustainability considerations									
Joining methods									
Workshop tools and machinery for cutting, joining and shaping									
Usage									
INVESTIGATION INTO WORK OF OTHERS	R	A	G	R	A	G	R	A	G
DYSON and ALESSI									
Phillippe Stark, David Adjaye, Marc Breuer									
UNDERSTANDING DESIGN STRATEGIES	R	A	G	R	A	G	R	A	G
Collaboration									
User centred design									
Iterative design									
Design fixation									
Systems approach design									
MATERIAL PROPERTIES	R	A	G	R	A	G	R	A	G
Absorbency (resistance to moisture)									
Density									
Electrical and Thermal conductivity									
Strength, Hardness, Toughness									
Malleability									
Ductility and elasticity									
FORCES AND STRESSES	R	A	G	R	A	G	R	A	G
Tension, Compression,Bending, Torsion, Shear									
Enhancing materials to resist forces and improve functionality									
MECHANICAL DEVICES	R	A	G	R	A	G	R	A	G
Levers (first order, second order and third order levers) + uses									
Linkages (bell cranks, push/pull) +uses									
Rotary systems (CAMs, pulleys and belts, Gear trains) +uses									
Types of movement (Linear, Rotary, reciprocating,oscillating)									
SYSTEMS (ELECTRONIC and MECHANICAL)	R	A	G	R	A	G	R	A	G
Identify electronic components and symbols and their functions									
Input components (Types of sensors and switches)									
Processes (microcontrollers, timers)									
Output components (Buzzers, speakers, lamps)									
The role of programmable components									
Drawing circuit boards. Flow charts,									
Tools and equipment, processes in manufacturing circuit boards									
COMMERCIAL PROCESSES	R	A	G	R	A	G	R	A	G
Metals (milling casting)									
Polymers (Injection Moulding and extrusion)									
Timbers (Routing and turning)									
Paper and boards (Offset lithography, die cutting)									

Topic/Unit Focus	1			2			Revision		
------------------	---	--	--	---	--	--	----------	--	--

