



Year 11, long term planning

Week	36	37	38	39
W/C Date	25-Jun	2-Jul	9-Jul	16-Jul
Topic: Unit 2 – Investigating an engineered product	To define and correctly spell keywords linked to Learning Aim B (selection of materials and components).		To demonstrate an understanding of the sustainability and environmental issues relating to the extraction and processing of raw materials and the disposal of products after their useful lifespan.	
Key Objectives	Students summarise what they have learnt about the following keywords: aesthetics, mechanical properties, electrical properties, chemical properties, cost, availability, durability, reusability, safety, raw materials, landfill, life cycle and recycling.		To compare and contrast raw material extraction and primary and secondary manufacturing processes for polymers, metals and timbers. To use this information to justify the importance of 'lightweighting', recycling and waste management in engineering design.	
Assessment	Teacher to mark and provide feedback that will inform students of their next stage of learning. Use of learning objectives as a basis of questioning and feedback during plenaries.			
Homework	Homework booklet			

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	Assessment weeks
	Moderation week
	Data Capture
	STAR marking
	Exit Poll

Key Skills to be Covered

Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
W/C Date	03-Sep	10-Sep	17-Sep	24-Sep	01-Oct	08-Oct	15-Oct		29-Oct	05-Nov	12-Nov	19-Nov	26-Nov	03-Dec	10-Dec	17-Dec		
Topic	To identify suitable alternative materials that could be used in the manufacture of the given product, including: <ul style="list-style-type: none"> Advantages and disadvantages of alternatives Comparison and contrast with the materials actually used. 		To define and correctly spell keywords linked to Learning Aim C.	To select production processes to meet the manufacturing needs of a given product	To determine the impact on the environment of the production processes used in the manufacture of components in the product	To explain the differences between two processes used in the manufacture of components in the given product	To identify specific quality-control checks that are used during the manufacture of an engineered product to ensure its quality and performance		To infer the type of quality assurance system that could have been used on an engineered product				To determine the impact on the environment of the production processes used in the manufacture of components in the product	To explain the differences between two processes used in the manufacture of components in the given product including:				
Key Objectives	To explain the mechanical, electromagnetic, chemical and thermal properties of materials suitable for the use in the manufacturing of the given product.		Students summarise what they have learnt about the following keywords: <i>Injection moulding, blow moulding, extrusion, compression moulding, cycle time, CNC machining, production</i>	To apply my knowledge to identify appropriate production and manufacturing processes in order to meet the manufacturing needs of a given product.	To explain the environmental impact of the production processes used in the manufacture of components in the product including: <ul style="list-style-type: none"> Energy (electrical) and resources(fossil fuels) used during production Waste production and pollution as a 	Compare/contrast suitability of manufacturing processes for given materials, including: Advantages and disadvantages of each process	Identify and describe the quality control checks undertaken at each of the following stages: <ul style="list-style-type: none"> Design Materials supply Production Assembly. 		Identify when and where quality-control checks take place, including: <ul style="list-style-type: none"> What the checks consist of How they form part of the overall quality-assurance system Fitness for purpose in terms of product meeting				explain the environmental impact of the production processes used in the manufacture of components in the product including: <ul style="list-style-type: none"> Energy (electrical) and resources(fossil fuels) used during production Waste production and pollution as a 	Compare/contrast suitability of manufacturing processes for given materials, including: Advantages and disadvantages of each process				
Assessment	Students apply this knowledge to determine the suitability of alternative materials with reference to engineering properties, qualities and environmental impact.										Prep for Mock Exams	Mock Examination	Mock Examination			Students redraft work		



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		processes, acid rain.		result of production (landfill, incineration).				specification criteria.				result of production (landfill, incineration).			
Homework	Homework booklet						Homework booklet								

Week	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
W/C Date	07-Jan	14-Jan	21-Jan	28-Jan	04-Feb	11-Feb		25-Feb	04-Mar	11-Mar	18-Mar	25-Mar	01-Apr	08-Apr		
Topic: Unit 1 – The engineered world	To identify engineering processes used to produce engineered products.	To compare/contrast different scales of production processes used in manufacturing and explain the advantages/disadvantages of modern production methods (e.g. assembly lines)	To identify developments in engineering materials and technologies and list the applications, characteristics and benefits of smart materials.	To explain modern material processing in engineering and justify the use of new technologies in use in engineering sectors (fibre optics, hydrogen fuel cells)	To understand how engineering contributes to a sustainable future.					To explain the advantages/disadvantages of minimising waste at the production stage in engineering using lean manufacturing techniques.	To evaluate renewable energy sources used in engineering.					
Key Objectives	summarise what they have learnt about engineering sectors and mechanical and electrical/electronic engineering processes (e.g. machining and forming techniques)	Produce written work that summarises features of the four scales of production and analyse how assembly lines and industrial robots have impacted engineering	Classify composite, high performance materials and smart materials and discuss the use of these materials in vehicles, sports equipment, turbines, aircraft and biomedical products.	Justify why products are manufactured using powdered metallurgy and discuss the benefits of using new technologies such as optical fibres in communications and blended wig technology in aerospace industry.	List the six stages of LCA and describe the concepts of raw material extraction and primary and secondary material production. I can discuss the benefits of safe material disposal and recycling.					Describe the similarities/differences between: <ul style="list-style-type: none"> Just –in-Time Kaizan Poka-yoke 	Describe the processes, characteristics, applications and advantages/disadvantages of hydro energy, geothermal energy, solar energy and wind energy.					
Assessment																
Homework	Homework booklet						Homework booklet									

Week	35	36	37	38	39	40	41	42	43	44	45	46	46
W/C Date	29-Apr	06 - May	13-May	20-May		03-Jun	10-June	17-June	24-June	01-July	08-July	15-July	22-July
Topic	Exam Revision					Exam Revision			End of Summer Exams				
Key Objectives	Exam Revision					Exam Revision			End of Summer Exams				
Assessment	Exam Revision					Exam Revision			End of Summer Exams				