



HALF TERM	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6
TOPIC (S)	<p>Objective:</p> <p><b>Introduction.</b> Complete Careers plan.</p>	<p>Objective</p> <p><b>COMPONENT 1.</b> <b>Learning aim A: Understand engineering sectors, products and organisations, and how they interrelate</b></p> <p>Teaching content A1: Engineering sectors, engineered products and interconnections.</p> <p>Component 1, A1, The need for people who are qualified</p> <p>Component 1, A1, Engineering definition in context.</p> <p>Component 1, A1, Engineering sectors</p> <p>Component 1, A1, Engineered products from different sectors</p>	<p>Objective:</p> <p>Component 1, A2, Examples of engineering organisations – global/large</p> <p>Component 1, A2, Examples of engineering organisations – SMEs and small jobbing companies</p> <p>Component 1, A2, Examples of engineering organisations covering the sectors</p> <p>Component 1, A2, Specialist organisations in sectors</p>	<p>Objective:</p> <p>Component 1, A2, Functions in organisations – research, design, planning, making</p> <p>Component 1, A2, Functions in organisations – quality, marketing, selling, customer service, installation.</p> <p>Component 1, A2, Engineering job roles – maintenance technician, machine operator, aircraft fitter, design engineer</p> <p>Component 1, A2, Engineering job roles – manufacturing engineer, installation engineer, process engineer, telecommunications engineer</p>	<p>Objective:</p> <p>Component 1, A2, Career progression opportunities.</p> <p>Component 1, A2, Role definitions.</p> <p>Component 1, A1, A2, Understand engineering sectors, products and organisations, and how they interrelate</p>	<p>Objective:</p> <p><b>COMPONENT 1.</b> <b>Learning aim B: Explore engineering skills through the design process</b></p> <p>Teaching content B1: The design process.</p> <p>Component 1, B1, The engineering design and make process.</p> <p>Component 1, B1, Interpreting an engineering brief.</p> <p>Component 1, B1, Interpreting an engineering brief – physical requirements, aesthetics, size, function, performance requirements.</p> <p>Component 1, B1, Interpreting an engineering brief.</p> <p>Component 1, B1, Producing initial</p>

						design proposals – researching existing products
Solidworks instruction and practice.						
Knowledge: Homework and ‘Do Nows’ using Component 2 Learning Aims.						
<b>Knowledge &amp; Skills development</b>	A1 Materials • Engineering material categories: o ferrous, e.g. mild steel, wrought iron, stainless steel o non-ferrous, e.g. aluminium, titanium, copper, silver, zinc o thermosetting polymers, e.g. phenol-formaldehyde, polyimides, polyurethane o thermoforming polymers, e.g. polyethylene, polypropylene, acrylic. • Properties of engineering materials: o strength o hardness o toughness. • Characteristics of engineering materials, such as: o machinability o workability o durability. A2 Components • Types of components, such as: o proprietary, e.g. rivet, nut and bolt, screw, key, mechanical fixings, electronic components, such as resistors, capacitors, fuses, diodes o product specific, e.g. bush, flange, printed circuit board (PCB). • Characteristics of components, e.g. permanent/semi-permanent, sizes/dimensions, surface roughness, values, fixing methods. A3 Processes Types of engineering processes: • cutting, e.g. drilling, sawing, filing, shearing • shaping, e.g. turning, milling • forming, e.g. forging, casting, extruding, moulding, folding, bending • joining, e.g. fastening, bonding, soldering, brazing					
<b>Assessment / Feedback Opportunities</b>	Cold calling to check for understanding. Visual check on note taking. Verbal formative and summative feedback.					
<b>Cultural Capital</b>	Pupils develop understanding of Engineering sectors and roles involved.					
<b>SMSC / Promoting British Values</b> (Democracy, Liberty, Rule of Law, Tolerance & Respect)	Patience and tolerance of others whilst following social distancing rules. Career opportunities that are available to diligent pupils.					
<b>Reading opportunities</b>	Reading research on Engineering sectors and organisations.					
<b>Key Vocabulary</b>	Engineering, aerospace, automotive, communications, electrical/electronics, mechanical, environmental, transport, rail and marine					
<b>Digital Literacy</b>	Use internet to help research.					
<b>Careers</b>	Pupils develop knowledge of the following engineering sectors and the roles included; aerospace, automotive, communications, electrical/electronics, mechanical, environmental, transport, rail and marine.					

