



Year 10					
Half term 1	Half term 2	Half term 3	Half term 4	Half term 5	Half term 6
Manufacturing engineering products Purpose: To be able to understand how to engineer products with planning, equipment, processes and health & safety <i>Unit 1 - Manufacturing engineering products:</i> Students need to be able to read from engineering drawings, produce a manufacturing log, risk assessment and components using various processes and engineering tools & equipment. Completion date MAY. <i>Unit 3:</i> Students need to understand materials, their origin and their suitable applications along with related properties to know what materials would be suitable for their	Manufacturing engineering products Purpose: To be able to understand how to engineer products with planning, equipment, processes and health & safety <i>Unit 1 - Manufacturing engineering products:</i> Students need to be able to read from engineering drawings, produce a manufacturing log, risk assessment and components using various processes and engineering tools & equipment. Completion date MAY. <i>Unit 3:</i> Students need to understand materials, their origin and their suitable applications along with related properties to know what materials would be suitable for their	Solving engineering problems & designing engineering products Purpose: - To complete Unit 1 manufacturing as well as paperwork - To understand the effects of Engineering on the environment - Students need to complete Unit 1 within this HT ready for submission in May. - Students need to know renewable and non renewable energy and their links to engineering processes for Unit 3. This can also link to the product life cycle from start to finish. Overview of the knowledge and skills covered in this unit: - Product life cycle	Solving engineering problems & designing engineering products Purpose: - To understand mathematics within engineering and confidently be able to solve mathematical equations - To begin to understand developments within Engineering. - Both linking to Unit 3 for the written exam at the end of Year 11. - Students need to link previous knowledge taught to engineering developments (specifically roller coasters, bikes and technology). Overview of the knowledge and skills covered in this unit: - Modern developments in	Solving engineering problems & designing engineering products Purpose: - To understand and recognise different material finishes and their applications - To confidently apply mathematical equations to solve engineering problems. - This half term will focus more on mathematical equations so students feel confident being able to apply these to solve engineering problems. - Students will need to know finishes that are applied to materials to make them more suitable for their applications. Overview of the knowledge and skills covered in this	Solving engineering problems Purpose: - To begin to become confident with design engineering - Students will be beginning their Unit 2 coursework at the start of Year 11. This half term will prepare year 10s for designing. - Students will be given their design brief for Unit 2 and will begin to look at existing products to help with this. Overview of the knowledge and skills covered in this unit: - Design - Product analysis - Functions of engineering products - Mechanical components - Material properties - Material finishes



Unit 1 product. Overview of the knowledge and skills covered in this unit: • Technical Drawing • Manufacturing process' and the ability to use engineering equipment such as dividers, callipers and centre lathe. • Materials and their properties • Ability to create appropriate risk assessment • Healthy and safety in the workshop • Understand workshop timings and meaning deadlines. How will this be assessed? • Formative assessment throughout the half term. • End of half term written test • Unit 1 will be assessed and handed in in April and is 40% of their overall grade.	unit 1 product. Overview of the knowledge and skills covered in this unit: • Technical Drawing • Manufacturing process' and the ability to use engineering equipment such as dividers, callipers and centre lathe. • Materials and their properties • Ability to create appropriate risk assessment • Healthy and safety in the workshop • Understand workshop timings and meaning deadlines. How will this be assessed? • Formative assessment throughout the half term. • End of half term written test • Unit 1 will be assessed and handed in in April and is 40% of their overall grade.	• Renewable and non renewable energy sources • Impact of engineered products on the environment • Metals, plastics, composites and smart materials • Disposing of materials safely • Destructive and non destructive testing • Joining methods How will this be assessed? • Formative assessment throughout the half term. • End of half term written test • Unit 1 will be assessed and handed in in April and is 40% of their overall grade.	engineering • Students will link previous knowledge taught to specific areas of engineering (mechanical, electrical and structural) • Linking materials and manufacturing processes to bikes, theme park rides and smart technology. • Students will recap technical drawing skills along with orthographic symbols • The manufacturing process How will this be assessed? • Formative assessment throughout the half term. • End of half term written test	unit: • Material finishes • Ohm's law • Mathematical techniques (volume, area) • The rule of forces • Velocity ratio • Mechanical advantage How will this be assessed? • Formative assessment throughout the half term. • End of half term written test	• Manufacturing processes How will this be assessed? • Formative assessment throughout the half term. End of HT written test
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