

Design Technology and Engineering Curriculum Map

	Year 7	Year 8	Year 9	Year 10	Year 11
Unit 1	Topic: Boats Prior learning: Students will, at this point, not be building upon prior learning due to this being a new subject for learners. However, there will be a number of topics learnt in other subjects that will be built on such as design, numeracy and some basic scientific concepts. Future learning: The design process Through practical exercises, learners will produce solutions to problems using different combinations of engineering skills, including designing as part of the engineering design and make process. The engineering design and make process: define the problem, develop possible solutions, choose a solution, design and model the solution, evaluate outcome of project, work in a team	Topic: Boats Prior learning: Students will build on their practical experiences gained in year 7 including marking out, basic hand tools, basic use of machinery. Future learning: The design process Through practical exercises, learners will produce solutions to problems using different combinations of engineering skills, including designing as part of the engineering design and make process. The engineering design and make process: define the problem, develop possible solutions, choose a solution, design and model the solution, evaluate outcome of project, work in a team. • Interpreting an engineering brief, e.g. physical requirements, aesthetics, size, function, performance requirements.	Topic: rocket cars Prior learning: Students will build on their practical experiences gained in year 8 including marking out, basic hand tools, basic use of machinery. Future learning: Students will investigate the work of four specific designers within Product Design and evaluate each of their styles. They will then look at design briefs and a specification before moving on to drawing. There will be a recap on workshop safety and the importance of risk assessment before being the manufacture of the rocket car	Topic: Secondary machining techniques Prior learning: Students will build on their practical experiences gained in year 9 including marking out, basic hand tools, basic use of machinery. Future learning: Students will investigate the work of four specific designers within Product Design and evaluate each of their styles. They will then look at design briefs and a specification before moving on to perspective drawing. There will be a recap on workshop safety and the importance of risk assessment before being the manufacture of the desk tidy project. Projects that will be completed and assessed by outcome include: Specification, Advanced drawing techniques, workshop techniques, Health and safety in the workshop, introduction to different machines that can be used to create their rocket car	Topic: Designing engineering products Prior learning: Students will be building on some basic design and technology skills, however these will not have been covered for some time. In this unit there will be a number of topics learnt in other subjects that will be built on such as design, numeracy and some basic scientific concepts. Future learning: Understanding engineering materials and processes is key to understanding the core principle of Engineering, and fundamental to an engineer's role is finding functional solutions to problems and demands.

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Unit 2	Topic Tractor Prior learning: Pillar drill, band facer ,hand tools, engineering drawings, manufacturing. Future learning: Students will learn about a variety of different tools and equipment that can be found in the DT workshop. Students will be taught about health and safety and they will learn how to work safely around others.	Topic: Boats Prior learning:. Students will build on their practical experiences gained in year 7 including marking out, basic hand tools, basic use of machinery. Future learning: The design process Through practical exercises, learners will produce solutions to problems using different combinations of engineering skills, including designing as part of the engineering design and make process.	Topic: rocket cars Prior learning:. Pillar drill, band facer ,hand tools, engineering drawings, manufacturing. Future learning: Students will investigate the work of four specific designers within Product Design and evaluate each of their styles. They will then look at design briefs and a specification before moving on to perspective drawing. There will be a recap on workshop safety and the importance of risk assessment.	Topic: Manufacturing engineering products Prior learning:. Students will build on their practical experiences gained in year 8 including marking out, basic hand tools, basic use of machinery. Future learning: Operational requirements, aesthetics, size, function, performance requirements. Designing engineering products, reverse engineering, drawings, CAD, development of design ideas.	Topic: Solving engineering problems Prior learning In this section learners will gain knowledge and understanding of engineering developments relevant to: describing engineering developments, explaining the effects of engineering achievements, explaining how environmental issues affect engineering applications.
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Unit 3	Topic: Tractor Prior learning: design, development of ideas, further manufacturing Future learning: 3D CAD (features, dimensioning, extruding, development of ideas). Health and safety in the workshop, Design brief and mood boards, Task analysis , Product Analysis, Client Profiles, Drawing techniques, Recap on workshop techniques, Introduction to different machines that can be used to create their clock, 6R's and sustainability	Topic: Boats Prior learning: As unit 2 will cover manufacturing students will not be building upon prior learning due to this being a new subject for learners. However, there will be a number of topics learnt in other subjects that will be built on such as design, numeracy and some basic scientific concepts. Future learning: Health and safety in the workshop, Design brief and mood boards, Task analysis , Product Analysis, Client Profiles, Drawing techniques, Recap on workshop techniques, Introduction to different machines that can be used to create their clock, 6R's and sustainability	Topic: rocket cars Prior learning: Students will use the manufacturing skills that they develop in unit to unit one and apply these skills to metals. Students will change from wood to metal in unit 1, and this will challenge students accuracy levels and hand tool skills. On top of this students will also build on their limited use of secondary machining techniques to learn how to use much more demanding and complicated machinery. Future learning:	Topic: Controlled assessment Prior learning: Awareness of risks and hazards for making processes. Safe preparation, good housekeeping and close down of the work area. Making skills associated with the product to be produced, e.g. choosing suitable tools, appropriate set up of the work area/machine, adaptation according to inspected outcomes. Skills in observing and recording techniques, e.g. in process measurement and comparison. Learners will produce solutions to problems using different combinations of practical engineering skills, including making as part of the engineering design and make process.	
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