



Key Stage 3 Curriculum Overview- Design and Technology

Progression from Key Stage 2 and Progression through Key Stage 3:

| | Autumn Term | Spring Term | Summer Term |
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| Year 6 | <p>Students at the end of Key Stage 2 will be able to:</p> <ul style="list-style-type: none"> • Students arrive from feeder schools with different experiences of D&T. These experiences will cover a variety of creative and practical activities. • Students should have been taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. • Students should be able to work in a range of relevant contexts. Few though will have significant experience using workshop tools & equipment. | | |
| Year 7 | <p>Skills Passport – developing the basics</p> <p>Area:</p> <ul style="list-style-type: none"> • Working with woods and boards <p>Outcomes:</p> <ul style="list-style-type: none"> • Walking animals, simple phone stands, gift box <p>Design:</p> <ul style="list-style-type: none"> • Develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations <p>Make:</p> <ul style="list-style-type: none"> • Select from and use specialist tools, techniques, processes, equipment and machinery precisely. • To be able to select and apply a range of appropriate finishes to enhance the aesthetics of a product. <p>Technical Knowledge:</p> <ul style="list-style-type: none"> • Identify sources of raw material, conversion and stock forms. | <p>Cast Jewellery - design across the world</p> <p>Area:</p> <ul style="list-style-type: none"> • Working with metals <p>Outcomes:</p> <ul style="list-style-type: none"> • Cast pewter and acrylic pendants and keyrings <p>Design:</p> <ul style="list-style-type: none"> • Create effective moodboards of imagery associated with different cultures and use this as inspiration to create designs for metal jewellery. To communicate production plans in picture format to enable third party manufacture. <p>Make:</p> <ul style="list-style-type: none"> • Select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture. <p>Technical Knowledge:</p> <ul style="list-style-type: none"> • Describe how designers can use influences from around the world. | <p>Clocks – inspired by others</p> <p>Area:</p> <ul style="list-style-type: none"> • Working with plastics <p>Outcome:</p> <ul style="list-style-type: none"> • Plastic clock inspired by the work of Memphis <p>Design:</p> <ul style="list-style-type: none"> • After undertaking a case study of the Memphis design movement students will design and model in card the design of a clock inspired by Memphis. This clock will then be manufactured in acrylic. <p>Make:</p> <ul style="list-style-type: none"> • Select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture. <p>Technical Knowledge:</p> <ul style="list-style-type: none"> • Have an understanding of the world of design. • Identify sources of raw material, conversion and stock forms. |





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| | <ul style="list-style-type: none"> Understand and use the properties of woods and manufactured boards to achieve functioning solutions. Explain wastage as a process. | <ul style="list-style-type: none"> Identify sources of raw material, conversion and stock forms. Explain redistribution as a process. Understand and use the properties of metals to achieve functioning solutions. | <ul style="list-style-type: none"> Explain addition as a process. Understand and use the properties of plastics to achieve functioning solutions. |
| Year 8 | <p>2D CAD – the world of nets</p> <p>Area:</p> <ul style="list-style-type: none"> Working with paper and boards <p>Outcome:</p> <ul style="list-style-type: none"> To develop packaging for a new milk product (Moo Shakes). <p>Design:</p> <ul style="list-style-type: none"> To develop 3D containers from 2D nets. To be able to design graphics on Serif Draw plus. To be able to design nets on 2D design. To be able to design and present storyboards and promotional information. <p>Make:</p> <ul style="list-style-type: none"> To be able to make packaging using a range of CAD and CAM packages. To be able to use a range of different print processes to create advertising materials. <p>Technical knowledge:</p> <ul style="list-style-type: none"> Understand and use the properties of papers and boards to achieve functioning solutions. | <p>Eco lamp – having the environment in mind</p> <p>Area:</p> <ul style="list-style-type: none"> Using reclaimed components. <p>Outcome:</p> <ul style="list-style-type: none"> To have produced an angle point lamp using reclaimed and reused components. <p>Design:</p> <ul style="list-style-type: none"> Use a variety of approaches, to generate creative ideas and avoid stereotypical responses. Develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations and computer-based tools <p>Make:</p> <ul style="list-style-type: none"> Select from and use a wider, more complex range of materials and components taking into account their properties. <p>Technical Knowledge:</p> | <p>Camera – designing for others</p> <p>Area:</p> <ul style="list-style-type: none"> Making 3D prototypes in a range of materials. <p>Outcome:</p> <ul style="list-style-type: none"> To produce a prototype of a child’s first camera. <p>Design:</p> <ul style="list-style-type: none"> To undertake research of similar products and use the information gathered to produce a range of designs for a child’s first camera. To utilise a range of graphical techniques to communicate these designs to others. Explore use CAD to communicate the design. <p>Make:</p> <ul style="list-style-type: none"> Select from and use a wider, more complex range of materials and components taking into account their properties. <p>Technical Knowledge:</p> <ul style="list-style-type: none"> Developing and working from specifications. Understanding developmental needs. |





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| | <ul style="list-style-type: none"> Understand how CAD and CAM can be used in the manufacture of products explaining the advantages and disadvantages of each. Describe different printing techniques Describe the importance of labelling and explain legal requirements. Explain how products can be marketed and discuss how social media has impacted on marketing. | <ul style="list-style-type: none"> Discuss the role designers and manufacturers can have in protecting the environment. Understand and use the properties of materials and the performance of structural elements to achieve functioning solutions. Understand how more advanced electrical and electronic systems can be used in their products [for example, circuits with heat, light, sound and movement as inputs and outputs. | <ul style="list-style-type: none"> Anthropometrics and ergonomics in action. The role of prototyping in design and manufacture. Comparing and contrasting physical and virtual models. |
| Year 9 | <p>Coat Hooks – Quality Control Area:</p> <ul style="list-style-type: none"> Batch production of coat hooks. <p>Outcome:</p> <ul style="list-style-type: none"> A coat hook consisting of at least two identical hooks. <p>Design:</p> <ul style="list-style-type: none"> To produce production plans to allow for accurate batch production. To design go/ no-go gauges and bending jigs. To design backboards using a range of techniques. <p>Make:</p> <ul style="list-style-type: none"> To make a coat hook from aluminium strip and natural woods. <p>Technical Knowledge:</p> <ul style="list-style-type: none"> Scales of production. | <p>3D CAD – An industrial brief Area:</p> <ul style="list-style-type: none"> Responding to an industrial brief by developing skills in solidworks. <p>Outcome:</p> <ul style="list-style-type: none"> To produce a range of 3D designs and 2D working drawings to design a new display stand for the Amada company. <p>Design:</p> <ul style="list-style-type: none"> Working from sketch designs produce a design for a new display stand in CAD. Produce fully rendered CAD drawings. Produce orthographic drawings. <p>Make:</p> <ul style="list-style-type: none"> Card prototype developed from CAD drawings. <p>Technical knowledge:</p> <ul style="list-style-type: none"> Working to specifications. | <p>Having fun with inclusivity Area:</p> <ul style="list-style-type: none"> To combine all skills developed across KS3 to complete a mini NEA product. <p>Outcome:</p> <ul style="list-style-type: none"> To have designed and made a fully inclusive educational child's toy. <p>Design:</p> <ul style="list-style-type: none"> Initial sketches, 2D and 3D drawings, 2D CAD, 3D CAD, sketch models, exploded views – employing all skills learnt across the Key stage. <p>Make:</p> <ul style="list-style-type: none"> Combining skills learnt across the Key Stage students may respond in a range of materials and employ a range techniques. <p>Technical Knowledge:</p> |





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| <ul style="list-style-type: none">• Quality control and quality assurance including accepted tolerances and go/ no gauges. | <ul style="list-style-type: none">• Working with constraints.• The importance of CAD. | <ul style="list-style-type: none">• Adaptive compared to inclusive designs – advantages and disadvantages.• Product analysis and disassembly.• British standards and the implications. |
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By the end of Key Stage 3 a student should be able to:

- Be confident in a workshop environment and behave in an appropriate way.
- Demonstrate a good technical knowledge and vocabulary using this with accuracy and confidence.
- Communicate effectively using words, pictures and models.
- Be creative designers challenging themselves to be innovative and take risks.
- Manufacture products using a range of materials, tools and processes.
- Look at existing products talking about design strengths and areas for development; they should be able to draw comparisons to similar products.

