

What is Parkside aiming to achieve through its Design Technology curriculum?

The purpose of KS3 Design Technology is to ensure that students develop skills and knowledge which are transferrable and develop learners into well-grounded individuals. These subjects include Food, Textiles, New and Emerging Technologies, DT and Engineering. The skills learnt aren't just practical based but also problem solving and encourage research, trial and error and exploring new and emerging technologies. The theory and practical lessons also enable students to successfully progress onto the GCSE Design Technology, Level 1/2 Engineering & Level 1/2 Hospitality & Catering courses on offer at KS4. KS3 rotations are assessed with 50% from practical work produced in the rotation and 50% from a theory assessment.

The creative industry is one of the largest in this country with a wealth of professions on offer such as interior designer, computer game designer or an architect to name just a few. Even during a Pandemic and economic turmoil this has been an industry which has thrived. Both in the UK and abroad. If you think about it everything you use on a daily basis has been designed. Some may have been developed and improved; whilst others are completely new! Perhaps you could become an inventor of the next big craze which we can't live without. Greener energy and battery powered products seem to be the focus and learning transferrable creative and team working skills are desirable in the work sector. We use the 6R's to drive many of the projects within the Design Technology curriculum. These are Recycle, Reduce, Re-use, Repair, Rethink and Refuse.

Parkside School Subject Curriculum Plan

Subject: Design Technology – KS3



Year	Food	Textiles	DT	Engineering	New and Emerging
7	- Introduction to Kitchen – H&S and personal hygiene - Understand health and safety risk within the kitchen and whilst preparing/cooking dishes. - Food storage and the danger zone - Food contamination and food poisoning bacteria - Equipment - A range of food practical lessons to develop skills in cooking	- Investigating monsters in History of Art from throughout the ages. - Applique and blanket stitch. - Hand embroidery techniques. - Develop ideas through research, annotations and illustrations. - Designing - Needle felting. - Machining skill building - Preparing a pattern - Cutting out fabric - Tacking - Turning out and stuffing	- Drawing skills (both 2D & 3D) - Application of colour, shade & tone to create realistic designs - CAD/CAM - Tinker CAD use - Polymer (differences between categories & negative environmental effects. - Manufacture planning - Safe & correct use of tools/equipment - Health & safety - Practical developing hand tool skills	- Understanding what an engineer does and how their work affects our lives. - See how engineers can work to improve the lives of others. - Producing engineering drawings, reading technical information. - Measure and mark out using millimeters with confidence. - Producing components/artefacts to a set criteria, reading drawings and accurately using hand tools. - Use a variety of tools and equipment (including a bench pillar drill) safely and with a degree of accuracy. - Be able to work safely in a workshop. - Evaluate outcomes against a set of criteria and suggest improvements. - Evaluate research and identify what is useful.	- Define what a robot is and suggest what tasks might be performed by a robot. - Explain what impact robots are likely to have on society and describe the advantages and disadvantages of using a robot to perform a given task. - Describe the generic parts that make up a robot and what each does. - Be able to analyse a task, break it down into individual functions and programme a robot to perform programming tasks. - Adding to their programming skills using add-ons to their robot. - Researching and understanding of circuits and how the LED's work. - Evaluate the performance of their programme and suggest improvements.

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Year	Food	Textiles	DT	Engineering	New and Emerging
8	- Food Hygiene & safety - Nutrition – Carbohydrates, Nutrition – Fats & oils Nutrition – Fibre - Start profile careers in hospitality and catering - Plating and presentation techniques - A range of food practical lessons to develop skills in cooking	- Exploring Abstract Art - Further developing sewing machine skills - Exploring a theme - Researching a theme - Designing on a theme - Developing skills in wet felting - Fabric painting and transfer using heat press. - Hand embellishing techniques including beading and couching - Finger knitting	- Sustainability in design with reference to upcycling, the wider environmental impact and 6rs. - Product evolution, society impact, technology push, market pull & obsolesce. 3D drawing techniques and application (wider use/links with careers) - Origins of materials, their applications, manufacturing methods and disposal. - Manufacture with reference to solving a design problem, accuracy, correct use of tools/equipment and health and safety. - Planning for manufacture - Evaluation, testing and third-party opinions on the final product. - Biomimicry in design and how nature inspires products - Metals theory. Practical – Pewter casting.	- Measure and mark out using millimetres with confidence. - Produce a marketable product using engineering principles. - Test a design outcome against design criteria. - Understand the environmental impact of design and the 6R's - Understand how engineers can work to overcome this and design your own engineered product. - Understand exploded drawing and how they are used. - Become confident at producing. - exploded drawings. - Plan to make and manufacture an engineered product. - Work safely with a variety of tools and equipment. - Test the outcome against a given design brief, suggest improvements and evaluate how successful these improvements are.	- Understand electronic components and symbols. - Be able to draw basic electric circuits - Understand how simple electronics are used in products - Understand how products are packaged and the different uses of papers and boards in industry - Analysis of existing product. - Understand what e-textiles are and how they will be used in their nightlight project and other applications (such as clothing) - Develop skills in hand-sewing an eTextiles circuit - Use the computers to create image to be sublimated. - Develop an understanding of CAD/CAM, production plans, QA and QC Understand how to safely use the sublimation printer and apply to fabric.

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Subject: Design Technology – KS3



PARKSIDE
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Year	Food	Textiles	DT	Engineering	New and Emerging
			▪	▪ Investigate polymers and their properties ▪ Understand the vacuum forming process ▪ Produce a polymer clock using the vacuum forming process ▪ Develop drawing skills with Isometric drawing.	▪ Complete the assembly of their keyring and develop evaluation skills using earlier written specification.

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Subject: Design Technology – KS3

Year	Food	Textiles	DT	Engineering	New and Emerging
9	• Employment Opportunities & Job roles in hospitality and catering sector. • Commercial practices and establishments • Industrial equipment & Planning menus & team cooking • Risk assessment when operating equipment. • Plating and presentation technique. • A range of food practical lessons to develop skills in cooking	▪ Exploring the work of Alexander McQueen ▪ Fine Art quilting techniques ▪ Digital image manipulation in PIXLR ▪ Fabric manipulation ▪ Japanese hand sewing Shibori ▪ Fabric manipulation on sewing machines including random pleating, cording and quilting. ▪ Inserting a zip ▪ Cutting a pattern ▪ Final product assembly.	▪ What are the working properties and differences between different polymers? ▪ How can plastics be manufactured, shaped and what are there sustainable features? ▪ How do the vacuum former and line bender work and what effect do they have on plastics? ▪ What is the importance of modelling and prototyping before final manufacturing? ▪ How do I safely and accurately work with a series of different material areas? ▪ What makes a smart material, smart? And what is the importance of continuing to invent modern materials? ▪ What is ergonomics and anthropometrics and why is it important to apply to products to make them appropriate to the chosen user? ▪ What is inclusive design and why is it important to	▪ Inclusive design, understand what this is and how engineers can respond to this. ▪ Understand the difference and importance of modelling and prototypes ▪ Be able to understand metal properties and explain metal applications ▪ Understanding polymer theory and be able to apply these to products ▪ Understand the 6R's and affects engineering has on the environment and how recycling plastics can help with this. ▪ Manufacture a chosen design using a range of hand tools and procedures. ▪ Perform practical tasks in a safe manner. ▪ Test the finished product and evaluate against a set of criteria. Suggest how improvements could be made. ▪ Understand how metals can be tested through destructive and non-destructive testing	▪ Presentation drawing techniques and rendering ▪ Use of CAD to create visuals – Tinker CAD, ▪ How does a 3D printer work? What are the uses of 3D printing in the wider world? ▪ The advantages and disadvantages of 3D printing ▪ Working to a provided design brief and specification. ▪ Environmental impacts of 3D printing. ▪ Research and understand the work of Alessi. ▪ Generate design ideas. ▪ Rapid prototyping and modelling (both physical and virtual) ▪ Researching a provided problem to solve with creative and innovative thinking ▪ Careers in new and emerging technologies ▪ Successfully 3D print and test its use via practical evaluation.

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Subject: Design Technology – KS3



PARKSIDE
SCHOOL

Year	Food	Textiles	DT	Engineering	Robotics
			ensure products are best fit to ALL users? ▪ What is the difference between a ferrous and non-ferrous metal? ▪ What are the working properties of metals and how can they be manufactured both in industry and in school? What is the health and safety implications of working with the pewter caster? ▪ What are the working properties of woods and timber-based materials? ▪ What printing and finishing effects can be applied to materials to improve their aesthetic appearance? ▪ Understand how CAD & CAM can be applied to the manufacture of products. ▪ How can I safely, correctly and accurately manufacture out of a variety of different materials?	▪ Understand the different elements of an engineered drawing ▪ Understand the basic electronic principles behind a simple circuit. ▪ Solder safely and to a high standard. ▪ Be able to produce a product analysis and identify gaps in the market to be filled.	