



St Paul's Way

Education • Foundation • Trust

Design Technology
KS3 Curriculum Booklet

Vision

At SPWT Design and Technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. SPWT students acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. SPWT students learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, our students develop a critical understanding of its impact on daily life and the wider world.

As designers, engineers, chefs and makers our students will be able to use their knowledge and skill to analyse problems by being investigative and detailed in their critical thinking to arrive at effective solutions. Through a variety of creative and practical activities, students engage in an iterative process of designing, making and cooking while working on a range of contexts, ensuring their ideas positively impact the environment.

Our curriculum encourages students to develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world, to build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users, to be able to critique, evaluate and test their ideas and products and the work of others, as well as to understand and apply the principles of nutrition and learn how to cook healthy meals independently.

Teaching and Learning

At KS3 our students work through a variety of creative and practical projects and contexts, allowing them to acquire the knowledge, understanding and skills needed to engage in an iterative process of designing and making prototypes and cooking healthy meals. Students are taught in mixed ability groups and are given the opportunity to develop drawing, making, analytical and evaluative skills whilst exploring new technologies, CAD/CAM, workshop machinery, the use of kitchen utensils and equipment and a variety of materials and techniques including wood, metal, plastic, card and food.

There are four key areas covered within the KS3 Design Technology curriculum:

Key area 1. Design: students use research and exploration to identify and understand user needs, identify and solve their own design problems and understand how to reformulate problems and develop specifications to inform the design of innovative, functional, appealing products. Students develop and communicate design ideas using annotated sketches, detailed plans, 3-D, oral and digital presentations.

Key area 2. Make: students plan and make prototypes or dishes selecting from and using specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture and ingredients while solving technical issues.

Key area 3. Evaluate: students analyse the work of others to develop and broaden their understanding. They test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users and other interested groups while gaining understanding of the impact of design and technology on individuals, society and the environment, and the responsibilities of designers, engineers and technologists.

Key area 4. Technical knowledge: students understand and use the properties of materials and the performance of structural elements to achieve functioning solutions exploring the use of mechanisms and electronic systems.

KS3 Year 7 'Key skills passport'	Three projects are on rotation and will be studied at different times for different groups		
	Topic: CAD/CAM - Design, make and evaluate Bookmark and Flat-pack lighting product Outcomes: - Research the work of others, Yinka Illori - Computer aided design, TechSoft - Computer aided manufacture, laser cutter - Timber, paper and electronic components - Dt and our world	Topic: Product Design - Make and evaluate Small storage product Outcomes: - Workshop health & safety - Hand making skills, marking out, shaping, finishing - Wood joints - Natural and manufactured recycled timber	Topic: Food and nutrition Food Safety & Healthy Menus Outcomes: - Health & safety - Food hygiene and healthy eating - Use of cooking techniques, utensils and equipment - Dishes such as pizza, wedges and crumble
	Assessment Key areas 1, 2, 3 & 4	Assessment Key areas 1, 3 & 4	Assessment Key areas 1, 2, 3 & 4
KS3 Year 8 'Inspired by nature and sustainability'	Three projects are on rotation and will be studied at different times for different groups		
	Topic: CAD/CAM - Design, make and evaluate Wall clock inspired by nature Outcomes: - Bimimicry applied to innovative design - Computer aided design, TechSoft - Computer aided manufacture, laser cutter - Mechanisms, manufactured timber, paper, acrylic and electronic components	Topic: Product Design - Design, make and evaluate Sustainable lighting product incorporating mechanisms Outcomes: - Research the work of others, Anglepoise lamp - Computer aided design, TechSoft - Computer aided manufacture, laser cutter - Mechanisms, manufactured timber, paper, acrylic and electronic components	Topic: Food and nutrition Food Provenance Outcomes: - Health & safety - Food origin and food miles. - Use of cooking techniques, utensils and equipment - Processing and technological developments - Dishes such as scones, egg fried rice and macaroni cheese
	Assessment	Assessment	Assessment

	Key areas 1, 2, 3 & 4	Key areas 1, 2, 3 & 4	Key areas 1, 2, 3 & 4
KS3 Year 9 'Design thinking strategies: Iterative design and designing for users' needs and wants'	Three projects are on rotation and will be studied at different times for different groups		
	Topic: CAD/CAM - Design, make and evaluate Iterative design challenge, visual communication skills for careers in Technology. Outcomes: - Advanced computer aided design 3D, TinkerCAD, SketchUp - Generating technical drawings including dimensioning, orthographic, isometric, render	Topic: Product Design - Design, make and evaluate Design and Technology association contextual design challenge. Outcomes: - Iterative design process - Prototyping with paper, card and cardboard - Generating and developing design ideas based on testing and evaluating.	Topic: Food and nutrition Food choices and dietary requirements Outcomes: - Risk Assessments (HACCP) - Advanced use of cooking techniques, utensils and equipment and adapting cooking processes - Dishes such as free-from cakes, fish cakes and stuffed peppers - Factors affecting choice of diet
	Assessment Key areas 1, 2	Assessment Key areas 1, 2, 3 & 4	Assessment Key areas 1, 2, 3 & 4

Supporting your child in Design Technology

KS3 Design Technology - Food and Nutrition
- Go and see free design exhibitions at Victoria and Albert Museum, The Design Museum, Tate Gallery, Young Victoria and Albert Museum, William Morris gallery, British Museum. - Visit useful websites such as: - BBC Bitesize KS3 Technology and Design: https://www.bbc.co.uk/bitesize/subjects/z23vkhv - Food, a fact of life: https://www.foodafactoflife.org.uk/11-14-years/ - The great British bake off: https://thegreatbritishbakeoff.co.uk/ - Describe how products work at home; explain the aesthetics, functions and possible modifications. - Explain why you decide to buy one product or ingredient instead of another, is it because it is more sustainable, more functional or better value for money? - Involve your child recycling at home, what materials go in what bin? - Help with knowing the correct spellings of key terms, materials and processes. - Challenge your child to use a sketchbook to practice free hand drawing: isometric, one point perspective, orthographic, exploded drawings, use of colouring pencils. - Cook healthy meals with your child.

