



St. James' Church of England Primary Academy

UKS2 DT SKILLS

<p>Year 5 – Design and Technology Autumn Term: Design an effective wooden boat Spring Term: Create a moving picture book Summer Term: Victorian themed recipes</p>	<p>Year 6 – Design and Technology Autumn Term: Design an effective wooden boat Spring Term: Create a moving picture book Summer Term: Victorian themed recipes</p>
<p>National Curriculum objectives When designing and making, pupils should be taught to:</p> <p>Design</p> <ul style="list-style-type: none"> ♣ use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups ♣ generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design <p>Make</p> <ul style="list-style-type: none"> ♣ select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately ♣ select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities <p>Evaluate</p> <ul style="list-style-type: none"> ♣ investigate and analyse a range of existing products ♣ evaluate their ideas and products against their own design criteria and consider the views of others to improve their work ♣ understand how key events and individuals in design and technology have helped shape the world <p>Technical knowledge</p> <ul style="list-style-type: none"> ♣ apply their understanding of how to strengthen, stiffen and reinforce more complex structures ♣ understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] ♣ understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] ♣ apply their understanding of computing to program, monitor and control their products. <p>Food and Nutrition</p> <ul style="list-style-type: none"> ♣ understand and apply the principles of a healthy and varied diet ♣ prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques ♣ understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed. 	
<p>Design</p>	<ul style="list-style-type: none"> • use internet and questionnaires for research and design ideas • take a user's view into account when designing • begin to consider needs/wants of individuals/groups when designing and ensure product is fit for purpose • create own design criteria * have a range of ideas • produce a logical, realistic plan and explain it to others. • use cross-sectional planning and annotated sketches

- draw on market research to inform design
- use research of user's individual needs, wants, requirements for design
- identify features of design that will appeal to the intended user
- create own design criteria and specification
- come up with innovative design ideas
- follow and refine a logical plan.
- use annotated sketches, cross-sectional planning and exploded diagrams



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	<ul style="list-style-type: none"> • make design decisions considering time and resources. • clearly explain how parts of product will work. • model and refine design ideas by making prototypes and using pattern pieces. • use computer-aided designs 	<ul style="list-style-type: none"> • make design decisions, considering, resources and cost • clearly explain how parts of design will work, and how they are fit for purpose • independently model and refine design ideas by making prototypes and using pattern pieces • use computer-aided designs
Make	<ul style="list-style-type: none"> • use selected tools/equipment with good level of precision • produce suitable lists of tools, equipment/materials needed • select appropriate materials, fit for purpose; explain choices, considering functionality • create and follow detailed stepby-step plan • explain how product will appeal to an audience • mainly accurately measure, mark out, cut and shape materials/components • mainly accurately assemble, join and combine materials/components • mainly accurately apply a range of finishing techniques • use techniques that involve a small number of steps • begin to be resourceful with practical problems 	<ul style="list-style-type: none"> • use selected tools and equipment precisely • produce suitable lists of tools, equipment, materials needed, considering constraints • select appropriate materials, fit for purpose; explain choices, considering functionality and aesthetics • create, follow, and adapt detailed step-by-step plans • explain how product will appeal to audience; make changes to improve quality • accurately measure, mark out, cut and shape materials/components • accurately assemble, join and combine materials/components • accurately apply a range of finishing techniques • use techniques that involve a number of steps • be resourceful with practical problems



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Evaluate	<ul style="list-style-type: none"> • evaluate quality of design while designing and making • evaluate ideas and finished product against specification, considering purpose and appearance. • test and evaluate final product • evaluate and discuss existing products, considering: how well they've been made, materials, whether they work, how they have been made, fit for purpose • begin to evaluate how much products cost to make and how innovative they are • research how sustainable materials are • talk about some key inventors/designers/ engineers/ chefs/manufacturers of groundbreaking products 	<ul style="list-style-type: none"> • evaluate quality of design while designing and making; is it fit for purpose? • keep checking design is best it can be. • evaluate ideas and finished product against specification, stating if it's fit for purpose • test and evaluate final product; explain what would improve it and the effect different resources may have had • do thorough evaluations of existing products considering: how well they've been made, materials, whether they work, how they've been made, fit for purpose • evaluate how much products cost to make and how innovative they are • research and discuss how sustainable materials are • consider the impact of products beyond their intended purpose • discuss some key inventors/designers/ engineers/ chefs/manufacturers of groundbreaking products
Technical knowledge Materials/ Structure	<ul style="list-style-type: none"> • select materials carefully, considering intended use of product and appearance • explain how product meets design criteria • measure accurately enough to ensure precision • ensure product is strong and fit for purpose • begin to reinforce and strengthen a 3D frame 	<ul style="list-style-type: none"> • select materials carefully, considering intended use of the product, the aesthetics and functionality. • explain how product meets design criteria • reinforce and strengthen a 3D frame



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Technical knowledge Mechanisms	<ul style="list-style-type: none"> refine product after testing grow in confidence about trying new / different ideas begin to use cams, pulleys or gears to create movement 	<ul style="list-style-type: none"> refine product after testing, considering aesthetics, functionality and purpose incorporate hydraulics and pneumatics be confident to try new / different ideas use cams, pulleys and gears to create movement
Technical knowledge Textiles	<ul style="list-style-type: none"> think about user and aesthetics when choosing textiles use own template think about how to make product strong and look better think of a range of ways to join things begin to understand that a single 3D textiles project can be made from a combination of fabric shapes. 	<ul style="list-style-type: none"> think about user's wants/needs and aesthetics when choosing textiles make product attractive and strong make a prototype use a range of joining techniques think about how product might be sold think carefully about what would improve product understand that a single 3D textiles project can be made from a combination of fabric shapes.
Technical knowledge Food and nutrition	<ul style="list-style-type: none"> explain how to be safe / hygienic and follow own guidelines present product well - interesting, attractive, fit for purpose begin to understand seasonality of foods understand food can be grown, reared or caught in the UK and the wider world describe how recipes can be adapted to change appearance, taste, texture, aroma explain how there are different substances in food / drink needed for health 	<ul style="list-style-type: none"> understand a recipe can be adapted by adding / substituting ingredients explain seasonality of foods learn about food processing methods name some types of food that are grown, reared or caught in the UK or wider world adapt recipes to change appearance, taste, texture or aroma. describe some of the different substances in food and drink, and how they can affect health prepare and cook a variety of savoury dishes safely and hygienically including, where appropriate, the use of heat source.



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	<ul style="list-style-type: none">• prepare and cook some savoury dishes safely and hygienically including, where appropriate, use of heat source• use range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking grow in confidence using some of the following techniques: peeling, chopping, slicing, grating, mixing, spreading, kneading and baking	<ul style="list-style-type: none">• use a range of techniques confidently such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.
Technical Knowledge- Electrical system	<ul style="list-style-type: none">• incorporate switch into product• confidently use number of components in circuit• begin to be able to program a computer to monitor changes in environment and control product	<ul style="list-style-type: none">• use different types of circuit in product• think of ways in which adding a circuit would improve product• program a computer to monitor changes in environment and control product