**St. Mary’s Church of England Primary School**

**Design and Technology skills progression**

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|  | **Key stage 1** | **Lower Key Stage 2** | **Upper Key stage 2** |
| **Design –** understanding contexts, users and purposes | * work confidently within a range of contexts, such as imaginary, story-based, home, school, gardens, playgrounds, local community, industry and the wider environment
* state what products they are making
* say whether their products are for themselves or other users
* describe what their products are for
* say how their products will work
* say how they will make their products suitable for their intended users
* use simple design criteria to help develop their ideas
 | * work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment
* describe the purpose of their products
* indicate the design features of their products that will appeal to intended users
* explain how particular parts of their products work
* gather information about needs and wants of particular individuals and groups
* develop their own design criteria and use these to inform their idea
 | * work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment
* describe the purpose of their products
* indicate the design features of their products that will appeal to intended users
* explain how particular parts of their products work
* carry out research, using surveys, interviews, questionnaires and web-based resources
* identify the needs, wants, preferences and values of particular individuals and groups
* develop a simple design specification to guide their thinking
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| **Design –** Generating, developing, modelling and communicating ideas | * generate ideas by drawing on their own experiences
* use knowledge of existing products to help come up with ideas
* develop and communicate ideas by talking and drawing
* model ideas by exploring materials, components and construction kits and by making templates and mock-ups
* use ICT, where appropriate, to develop and communicate their ideas
 | * share and clarify ideas through discussion
* model their ideas using prototypes and pattern pieces
* use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas
* use computer-aided design to develop and communicate their ideas
* generate realistic ideas, focusing on the needs of the user
* make design decisions that take account of the availability of resource
 | * share and clarify ideas through discussion
* model their ideas using prototypes and pattern pieces
* use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas
* use computer-aided design to develop and communicate their ideas
* generate realistic ideas, focusing on the needs of the user
* make design decisions that take account of the availability of resources
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| **Make –** planning | * plan by suggesting what to do next
* select from a range of tools and equipment, explaining their choices
* select from a range of materials and components according to their characteristics
 | * select tools and equipment suitable for the task
* explain their choice of tools and equipment in relation to the skills and techniques they will be using
* select materials and components suitable for the task
* explain their choice of materials and components according to functional properties and aesthetic qualities
* order the main stages of making
 | * select tools and equipment suitable for the task
* explain their choice of tools and equipment in relation to the skills and techniques they will be using
* select materials and components suitable for the task
* explain their choice of materials and components according to functional properties and aesthetic qualities
* produce appropriate lists of tools, equipment and materials that they need
* formulate step-by-step plans as a guide to making
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| **Make –** practical skills and techniques | * follow procedures for safety and hygiene
* use a range of materials and components, including construction materials and kits, textiles, food ingredients and mechanical components
* measure, mark out, cut and shape materials and components
* assemble, join and combine materials and components
* use finishing techniques, including those from art and design
 | * follow procedures for safety and hygiene
* use a wider range of materials and components than KS1, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components
* measure, mark out, cut and shape materials and components with some accuracy
* assemble, join and combine materials and components with some accuracy
* apply a range of finishing techniques, including those from art and design, with some accuracy
 | * follow procedures for safety and hygiene
* use a wider range of materials and components than KS1, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components
* accurately measure, mark out, cut and shape materials and components
* accurately assemble, join and combine materials and components
* accurately apply a range of finishing techniques, including those from art and design
* use techniques that involve a number of steps
* demonstrate resourcefulness when tackling practical problems
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| **Evaluate –** own ideas and products | * Talk about their design ideas and what they are making.
* Make simple judgements about their products and ideas against design criteria.
* Suggest how their products could be improved.
 | * identify the strengths and areas for development in their ideas and products
* consider the views of others, including intended users, to improve their work
* refer to their design criteria as they design and make
* use their design criteria to evaluate their completed products
 | * identify the strengths and areas for development in their ideas and products
* consider the views of others, including intended users, to improve their work
* critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make
* evaluate their ideas and products against their original design specification
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| **Evaluate-** existing products | * Explore what products are and who or what they are for.
* Explore how products work and how or where they might be used.
* Explore what materials products are made from.
* Explore what they like and dislike about products.
 | Pupils will be taught to investigate and analyse: * how well products have been designed and made
* why materials have been chosen
* what methods of construction have been used
* developed ground-breaking products
* how well products work to achieve their purposes
* how well products meet user needs and wants
* who designed and made the products
* where and when products were designed and made
* whether products can be recycled or reused
 | Pupils will be taught to investigate and analyse: * how well products have been designed and made
* why materials have been chosen
* what methods of construction have been used
* how well products work to achieve their purposes
* how well products meet user needs and wants
* how much products cost to make
* how innovative products are
* how sustainable the materials in products are
* what impact products have beyond their intended purpose
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| **Evaluating –** key events and individuals | N/A | * about inventors, designers, engineers, chefs and manufacturers who have
 | * about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products
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| **Technical skills –** Making products work | * About the simple working characteristics of materials and components.
* About the movement of simple mechanisms such as levers, sliders, wheels and axles.
* How freestanding structures can be made stronger, stiffer and more stable.
* That a 3-D textiles product can be assembled from two identical fabric shape.
* That food ingredients should be combined according to their sensory characteristics.
* The correct technical vocabulary for the projects they are undertaking.
 | * how to use learning from science and maths to help design and make products that work
* that materials have both functional properties and aesthetic qualities
* that materials can be combined and mixed to create more useful characteristics
* that mechanical and electrical systems have an input, process and output
* use the correct technical vocabulary for the projects they are undertaking
* how mechanical systems such as levers and linkages or pneumatic systems create movement
* how simple electrical circuits and components can be used to create functional products
* how to program a computer to control their products
* how to make strong, stiff shell structures
* that a single fabric shape can be used to make a 3D textiles product
* that food ingredients can be fresh, pre-cooked and processed
 | * how to use learning from science and maths to help design and make products that work
* that materials have both functional properties and aesthetic qualities
* that materials can be combined and mixed to create more useful characteristics
* that mechanical and electrical systems have an input, process and output
* the correct technical vocabulary for the projects they are undertaking
* how mechanical systems such as cams or pulleys or gears create movement
* how more complex electrical circuits and components can be used to create functional products
* how to program a computer to monitor changes in the environment and control their products
* how to reinforce and strengthen a 3D framework
* that a 3D textiles product can be made from a combination of fabric shapes
* that a recipe can be adapted by adding or substituting one or more ingredients
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| **Cooking and nutrition –** where food comes from | * That all food comes from plants or animals.
* That food has to be farmed, grown elsewhere (e.g. home) or caught.
 | * that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world
 | * that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world
* that seasons may affect the food available
* how food is processed into ingredients that can be eaten or used in cooking
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| **Cooking and nutrition –** food preparation, cooking and nutrition | * How to name and sort foods into the five groups in The Eat well Plate.
* That everyone should eat at least five portions of fruit and vegetables every day.
* How to prepare simple dishes safely and hygienically, without using a heat source.
* How to use techniques such as cutting, peeling and grating.
 | * how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source
* how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking
* that a healthy diet is made up from a variety and balance of different food and drink, as depicted in The Eat well Plate
* that to be active and healthy, food and drink are needed to provide energy for the body
 | * how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source
* how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking
* that recipes can be adapted to change the appearance, taste, texture and aroma
* that different food and drink contain different substances – nutrients, water and fibre – that are needed for health
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