St Peter’s Catholic Primary Design and Technology Progression of Skills

|  |  |  |  |
| --- | --- | --- | --- |
| Designing | KS1 | LKS2 | KS2 |
| Understanding contexts, users and purposes | Across KS1 pupils should: • 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 designing and 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 | Across KS2 pupils should: • 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  |
| In early KS2 pupils should also: • gather information about the needs and wants of particular individuals and groups • develop their own design criteria and use these to inform their ideas | In late KS2 pupils should also: • 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 |
| Generating, developing, modelling and communicating ideas | Across KS1 pupils should: • 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 mockups • use information and communication technology, where appropriate, to develop and communicate their ideas | Across KS2 pupils should: • 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  |
| In early KS2 pupils should also: • generate realistic ideas, focusing on the needs of the user • make design decisions that take account of the availability of resources | In late KS2 pupils should also: • generate innovative ideas, drawing on research • make design decisions, taking account of constraints such as time, resources and cost |
| Making | KS1 | LKS2 | UKS2 |
| Planning | Across KS1 pupils should: • 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 | Across KS2 pupils should: • 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  |
| In early KS2 pupils should also: • order the main stages of making  | In late KS2 pupils should also: • produce appropriate lists of tools, equipment and materials that they need • formulate step-by-step plans as a guide to making |
| Practical skills and techniques | Across KS1 pupils should: • 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 | Across KS2 pupils should: • 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  |
| In early KS2 pupils should also: • 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  | In late KS2 pupils should also: • 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 |
| Evaluating | KS1 | LKS2 | UKS2 |
| Own ideas and products | Across KS1 pupils should: • 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 | Across KS2 pupils should: • identify the strengths and areas for development in their ideas and products • consider the views of others, including intended users, to improve their work |
| In early KS2 pupils should also: • refer to their design criteria as they design and make • use their design criteria to evaluate their completed products | In late KS2 pupils should also: • 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 |
| Existing products | Across KS1 pupils should explore: • what products are • who products are for • what products are for • how products work • how products are used • where products might be used • what materials products are made from • what they like and dislike about products | Across KS2 pupils should investigate and analyse: • how well products have been designed • how well products have been made • why materials have been chosen • what methods of construction have been used • how well products work • how well products achieve their purposes • how well products meet user needs and wants |
| In early KS2 pupils should also investigate and analyse: • who designed and made the products • where products were designed and made • when products were designed and made • whether products can be recycled or reused | In late KS2 pupils should also investigate and analyse: • 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 |
| Key events and individuals | Not a requirement in KS1 | Across KS2 pupils should know: • about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products |
| Technical Knowledge | KS1 | LKS2 | UKS2 |
| Making products work | Across KS1 pupils should know: • 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 shapes • that food ingredients should be combined according to their sensory characteristics • the correct technical vocabulary for the | Across KS2 pupils should know: • how to use learning from science to help design and make products that work • how to use learning from mathematics 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 |
| In early KS2 pupils should also know: • 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 | In late KS2 pupils should also know: • 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 |
| Cooking and Nutrition | KS1 | LKS2 | UKS2 |
| Where food comes from | Across KS1 pupils should know: • that all food comes from plants or animals • that food has to be farmed, grown elsewhere (e.g. home) or caught | Across KS2 pupils should know: • 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 |
|  | In late KS2 pupils should also know: • that seasons may affect the food available • how food is processed into ingredients that can be eaten or used in cooking |
| Food preparation, cooking and nutrition | Across KS1 pupils should know: • 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  | Across KS2 pupils should know: • 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 |
| In early KS2 pupils should also know: • 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 | In late KS2 pupils should also know: • 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 |