

Killigrew Primary and Nursery School Design and Technology Skills Progression



| | | Early Years | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
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| Designing | Understanding contexts, users and purposes | <ul style="list-style-type: none">• Explore how things work.• Use talk to help work out problems and organise thinking and activities Explain how things work and why they might happen. | <ul style="list-style-type: none">• 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 | <ul style="list-style-type: none">• 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 | <ul style="list-style-type: none">• Gather information about the needs and wants of particular individuals and groups• Develop their own design criteria and use these to inform their ideas | <ul style="list-style-type: none">• 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 | <ul style="list-style-type: none">• Use large-muscle movements to wave flags and streamers, | <ul style="list-style-type: none">• Generate ideas by drawing on their own experiences• Use knowledge of existing products to help come up with ideas | <ul style="list-style-type: none">• 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 | | | | |

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| | | <ul style="list-style-type: none">• Paint and make marks• Develop own ideas and then decide which materials to use to express them.• Explore, use and refine a variety of artistic effects to express their ideas and feelings.• Articulate their ideas and thoughts in well-formed sentences. | <ul style="list-style-type: none">• 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 information and communication technology, where appropriate, to develop and communicate their ideas | <ul style="list-style-type: none">• Generate realistic ideas, focusing on the needs of the user• Make design decisions that take account of the availability of resources | <ul style="list-style-type: none">• Generate innovative ideas, drawing on research• Make design decisions, taking account of constraints such as time, resources and cost | | | |
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| Making | Planning | <ul style="list-style-type: none">• Select and use activities and resources, with help when needed to achieve a goal self- chosen or suggested to them. | <ul style="list-style-type: none">• 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 | <ul style="list-style-type: none">• 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 | | | | |
| | | | | <ul style="list-style-type: none">• Order the main stages of making | <ul style="list-style-type: none">• 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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| | <p>Practical skills and techniques</p> | <ul style="list-style-type: none"> Choose the right resources to carry out their own plan. <p>Use one-handed tools and equipment,</p> | <ul style="list-style-type: none"> Follow procedures for safety and hygiene Use a range of materials and components, including construction materials and kits, textiles, food ingredients and mechanical components | <ul style="list-style-type: none"> 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 |
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| | | <p>for example, making snips in paper with scissors.</p> <ul style="list-style-type: none"> • Make imaginative and complex 'small worlds' with blocks and construction kits, such as a city with different buildings and a park. • Create closed shapes with continuous lines, and begin to use these shapes to represent objects. • Explore different materials freely, to develop their ideas about how to use them and what to make. • Develop their small motor skills so that they can use a range of tools competently, | <ul style="list-style-type: none"> • 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 | <ul style="list-style-type: none"> • 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 | <ul style="list-style-type: none"> • 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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| | | <p>safely and confidently.</p> <ul style="list-style-type: none">• Return to and build on their previous learning, refining ideas & developing their ability to represent them.• Create collaboratively, sharing ideas, resources and skills.• Use a range of small tools, including scissors, paintbrushes and cutlery.• Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. | | | | | | |
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| Evaluating | Own ideas and products | <ul style="list-style-type: none"> Express a point of view and to debate when they disagree with an adult or a friend, using words as well as actions. Articulate their ideas and thoughts in well-formed sentences. Share their creations, explaining the process they have used. | <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> Identify the strengths and areas for development in their ideas and products Consider the views of others, including intended users, to improve their work |
| | Existing products | <ul style="list-style-type: none"> Explore how things work. | <p>Explore:</p> <ul style="list-style-type: none"> what products are who products are for what products are for how products work how products are used where products might be used | <p>Investigate and analyse:</p> <ul style="list-style-type: none"> 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 |

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| | | | <ul style="list-style-type: none">• what materials products are made from• what they like and dislike about products | | Investigate and analyse: <ul style="list-style-type: none">• 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 | | Investigate and analyse: <ul style="list-style-type: none">• 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 | | | | Know: <ul style="list-style-type: none">• about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products. | | | |
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| Technical Knowledge | Making products work | <ul style="list-style-type: none">• Explore how things work.• Use talk to help work out problems and organise thinking and activities | Know: <ul style="list-style-type: none">• about the simple working characteristics of materials and components• about the movement of simple mechanisms such as levers, sliders, wheels and axles | | Know: <ul style="list-style-type: none">• 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 | | | |

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| | | <ul style="list-style-type: none">Explain how things work and why they might happen. | <ul style="list-style-type: none">how freestanding structures can be made stronger, stiffer and more stablethat a 3-D textiles product can be assembled from two identical fabric shapesthat food ingredients should be combined according to their sensory characteristicsthe correct technical vocabulary for the projects they are undertaking | <p>Know:</p> <ul style="list-style-type: none">how mechanical systems such as levers and linkages or pneumatic systems create movementhow simple electrical circuits and components can be used to create functional productshow to program a computer to control their productshow to make strong, stiff shell structuresthat a single fabric shape can be used to make a 3D textiles productthat food ingredients can be fresh, pre-cooked and processed | <p>Know:</p> <ul style="list-style-type: none">how mechanical systems such as cams or pulleys or gears create movementhow more complex electrical circuits and components can be used to create functional productshow to program a computer to monitor changes in the environment and control their productshow to reinforce and strengthen a 3D frameworkthat a 3D textiles product can be made from a combination of fabric shapesthat a recipe can be adapted by adding or substituting one or more ingredients | | | |
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| Cooking and Nutrition | Where food comes from | | <p>Know:</p> <ul style="list-style-type: none">that all food comes from plants or animalsthat food has to be farmed, grown elsewhere (e.g. home) or caught | <p>Know:</p> <ul style="list-style-type: none">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 | | | | |
| | | | | | <p>Know:</p> <ul style="list-style-type: none">that seasons may affect the food availablehow food is processed into ingredients that can be eaten or used in cooking | | | |

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| | Food preparation, cooking and nutrition | <ul style="list-style-type: none"> • Select and use activities and resources, with help when needed. • Articulate their ideas and thoughts in well-formed sentences. • Share their creations, explaining the process they have used. • Use a range of small tools, including scissors, paintbrushes and cutlery. | <p>Know:</p> <ul style="list-style-type: none"> • how to name and sort foods into the five groups in The Eatwell Guide • 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 | <p>Know:</p> <ul style="list-style-type: none"> • 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 <p>Know:</p> <ul style="list-style-type: none"> • that a healthy diet is made up from a variety and balance of different food and drink, as depicted in The Eatwell Guide • that to be active and healthy, food and drink are needed to provide energy for the body <p>Know:</p> <ul style="list-style-type: none"> • 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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Design and Technology Progression Framework taken and adapted from Design and Technology Association - National Curriculum Expert Group for D&T