



King Athelstan Design and Technology Progression of Skills



	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Designing							
Understanding contexts, users and purposes	See EYFS Progression Documents	Ask simple questions about existing products and those that he/she has made • 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	Design purposeful, functional, appealing products for himself/ herself and other users based on design criteria • say how they will make their products suitable for their intended users	Use knowledge of existing products to design his/her own functional product • 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 • develop their own design criteria and use these to inform their ideas	Use knowledge of existing products to design a functional and appealing product for a particular purpose and audience • gather information about the needs and wants of particular individuals and groups • indicate the design features of their products that will appeal to intended users • explain how particular parts of their products work	Use his/her research into existing products and his/her market research to inform the design of his/her own innovative product • carry out research, using surveys, interviews, questionnaires and web-based resources • identify the needs, wants, preferences and values of particular individuals and groups	Use research he/she has done into famous designers and inventors to inform the design of his/her own innovative products • develop a simple design specification to guide their thinking
Generating, developing, modelling and communicating ideas		Create simple designs for a product Use pictures and words to describe what he/ she wants to do • 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	Generate, develop, model and communicate his/ her ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology • use simple design criteria to help develop their ideas • use information and communication technology, where appropriate, to develop and communicate their ideas • model ideas by exploring materials, components and construction kits and by making templates and mock-ups	Create designs using annotated sketches, cross-sectional diagrams and simple computer programmes • share and clarify ideas through discussion • model their ideas using prototypes and pattern pieces • use computer-aided design to develop and communicate their ideas • generate realistic ideas, focusing on the needs of the user	Create designs using exploded diagrams • use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas • make design decisions that take account of the availability of resources	Create prototypes to show his/her ideas • generate innovative ideas, drawing on research	Generate, develop, model and communicate his/her ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design • make design decisions, taking account of constraints such as time, resources and cost

Making							
Planning		Select from and use a range of tools and equipment to perform practical tasks e.g. cutting, shaping, joining and finishing • plan by suggesting what to do next • select from a range of tools and equipment, explaining their choices	Choose appropriate tools, equipment, techniques and materials from a wide range • select from a range of materials and components according to their characteristics	Make suitable choices from a wider range of tools and unfamiliar materials and plan out the main stages of using them • 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 • order the main stages of making	Use his/her knowledge of techniques and the functional and aesthetic qualities of a wide range of materials to plan how to use them • explain their choice of materials and components according to functional properties and aesthetic qualities • that materials have both functional properties and aesthetic qualities	Begin to produce step by step plans to guide his/her making, demonstrating that he/she can apply his/her knowledge of different materials, tools and techniques • begin to produce appropriate lists of tools, equipment and materials that they need • start to formulate step-by-step plans as a guide to making	Produce step by step plans to guide his/her making, demonstrating that he/she can apply his/her knowledge of different materials, tools and techniques • 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		Use a range of simple tools to cut, join and combine materials and components safely • follow procedures for safety and hygiene • use a range of materials and components, including construction materials and kits, textiles, food ingredients and mechanical components • assemble, join and combine materials and components	Safely measure, mark out, cut and shape materials and components using a range of tools Explore and use mechanisms e.g. levers, sliders, wheels and axles, in his/her products • measure, mark out, cut and shape materials and components • use finishing techniques, including those from art and design	Safely measure, mark out, cut, assemble and join 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 • assemble, join and combine materials and components with some accuracy	Use techniques which require more accuracy to cut, shape, join and finish his/her work e.g. Cutting internal shapes, slots in frameworks • measure, mark out, cut and shape materials and components with some accuracy • apply a range of finishing techniques, including those from art and design, with some accuracy	Make careful and precise measurements so that joins, holes and openings are in exactly the right place • accurately measure, mark out, cut and shape materials and components • accurately assemble, join and combine materials and components • use techniques that involve a number of steps	Apply his/her knowledge of materials and techniques to refine and rework his/her product to improve its functional properties and aesthetic qualities • accurately apply a range of finishing techniques, including those from art and design • demonstrate resourcefulness when tackling practical problems

Evaluating

Own ideas and products		Ask simple questions about products that he/she has made • talk about their design ideas and what they are making	Evaluate and assess existing products and those that he/she has made using a design criterion • make simple judgements about their products and ideas against design criteria • suggest how their products could be improved	Use knowledge of existing products to design his/her own functional product Investigate and analyse products he/she has made, considering a wide range of factors • identify the strengths and areas for development in their ideas and products • refer to their design criteria as they design and make • use their design criteria to evaluate their completed products	Investigate and analyse products he/she has made, considering a wide range of factors including Consider how his/her own finished products might be improved and how well they meet the needs of the intended user • consider the views of others, including intended users, to improve their work	Make detailed evaluations about his/her own products considering the views of others to improve his/her work • critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make	Use his/her knowledge of famous designs to further explain the effectiveness of existing products and products he/she have made • evaluate their ideas and products against their original design specification
Existing products		Ask simple questions about existing products • what products are • who products are for • what products are for • how products work • what they like and dislike about products	Ask simple questions about existing products • 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	Investigate and analyse existing products, considering a wide range of factors • how well products have been made • why materials have been chosen • how well products work • who designed and made the products • where products were designed and made • when products were designed and made	Investigate and analyse existing products and those he/she has made, considering a wide range of factors including Consider how existing products finished products might be improved and how well they meet the needs of the intended user • how well products have been designed • how well products meet user needs and wants • what methods of construction have been used • how well products achieve their purposes	Begin to make detailed evaluations about existing products considering the views of others to improve his/her work • how sustainable the materials in products are • whether products can be recycled or reused	Make detailed evaluations about existing products considering the views of others to improve his/her work • how much products cost to make • how innovative 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							
Making products work		Use wheels and axles in a product • about the movement of simple mechanisms such as wheels and axles Build structures, exploring how they can be made stronger, stiffer and more stable • how freestanding structures can be made stronger, stiffer and more stable • about the simple working characteristics of materials and components • that a 3-D textiles product can be assembled from two identical fabric shapes • the correct technical vocabulary for the projects they are undertaking	Investigate different techniques for stiffening a variety of materials and explore different methods of enabling structures to remain stable • about the movement of simple mechanisms such as levers and sliders • how freestanding structures can be made stronger, stiffer and more stable • the correct technical vocabulary for the projects they are undertaking	Strengthen frames using diagonal struts • how to use learning from mathematics to help design and make products that work • that materials can be combined and mixed to create more useful characteristics Apply techniques he/she has learnt to strengthen structures and explore his/her own ideas • how to make strong, stiff shell structures • that a single fabric shape can be used to make a 3D textiles product • the correct technical vocabulary for the projects they are undertaking	Understand how mechanical systems such as levers and linkages or pneumatic systems create movement Understand and use electrical systems in products • how to use learning from science to help design and make products that work • 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 • that mechanical and electrical systems have an input, process and output	Build more complex 3D structures and apply his/her knowledge of strengthening techniques to make them stronger or more stable Use a wide range of methods to strengthen, stiffen and reinforce complex structures and can use them accurately and appropriately • how to reinforce and strengthen a 3D framework • how mechanical systems such as cams or pulleys or gears create movement	Use technical knowledge accurate skills to problem solve during the making process Apply his/her understanding of computing to program, monitor and control his/her product • 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 • that a 3D textiles product can be made from a combination of fabric shapes
Cooking and Nutrition							
Where food comes from		Say where some food comes from and give examples of food that is grown • that all food comes from plants or animals	Understand that all food has to be farmed, grown or caught • that food has to be farmed, grown elsewhere (e.g. home) or caught	Understand that food has to be grown, farmed or caught in Europe and the wider world • that a recipe can be adapted by adding or substituting one or more ingredients • 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	Understand seasonality and the advantages of eating seasonal and locally produced food • that food ingredients can be fresh, pre-cooked and processed	Understand how a variety of ingredients are grown, reared, caught and processed to make them safe and palatable / tasty to eat • that seasons may affect the food available • how food is processed into ingredients that can be eaten or used in cooking	Use information on food labels to inform choices • that a recipe can be adapted by adding or substituting one or more ingredients

Food preparation, cooking and nutrition		Talk about what he/she eats at home and begin to discuss what healthy foods are • that food ingredients should be combined according to their sensory characteristics Use simple tools with help to prepare food safely • how to use techniques such as cutting, peeling and grating	Understand the need for a variety of food in a diet • how to name and sort foods into the five groups in The Eatwell plate • that everyone should eat at least five portions of fruit and vegetables every day Use a wider range of cookery techniques to prepare food safely • how to prepare simple dishes safely and hygienically, without using a heat source	Talk about the different food groups and name food from each group • that a healthy diet is made up from a variety and balance of different food and drink, as depicted in The Eatwell plate Use a wider variety of ingredients and techniques to prepare and combine ingredients safely • how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking	Understand what makes a healthy and balanced diet, and that different foods and drinks provide different substances the body needs to be healthy and active • that to be active and healthy, food and drink are needed to provide energy for the body Read and follow recipes which involve several processes, skills and techniques • how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source	Understand the main food groups and the different nutrients that are important for health • that different food and drink contain different substances - nutrients, water and fibre - that are needed for health Select appropriate ingredients and use a wide range of techniques to combine them • that recipes can be adapted to change the appearance, taste, texture and aroma	Confidently plan a series of healthy meals based on the principles of a healthy and varied diet Research, plan and prepare and cook a savoury dish, applying his/her knowledge of ingredients and his/her technical skills
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KEY

Objectives in **bold** are from Sonar formative assessment - used for informing assessment

Objectives with bullet points are from Projects on a Page progression document - used for planning