Skills Progression: DT

National Curriculum aims & purpose:	School aims - skills, attitudes and knowledge that we would like all children to develop on their journey through the school
Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact. Aims: • Develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate in an increasingly technological world • Build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users • Critique, evaluate and test their ideas and products and the work of others • Understand the principles of nutrition and learn to cook.	At St Neot, we want our children to become confident, independent problem solvers, who view challenges with curiosity and a 'what about trying…' mindset - both at school and in their wider life beyond. When presented with practical problems, our children will be able to combine their skills and prior knowledge to come up with a range of possible solutions, and then use their experience and understanding to focus in on what they consider to be the best design choice. They will have the practical and technical skills needed to put that idea into practice - and the wherewithal to overcome whatever barriers may present themselves on the way to a completed solution to their initial problem. To that end, children in every class will be given opportunities to explore new materials, tools, mechanisms and designs, and will be encouraged to explore all of these to find both their potential and their limitations. Each unit of work will have a clear, practical goal as its outcome, accompanied by design criteria against which finished products can be tested and evaluated. Our children will also learn how to use these materials and tools safely and responsibly, and over time will begin to consider the impact that products (and material choices) can have on the wider world.

Links to learning in EYFS:	Links to other subjects / curriculum areas:	Experiences every child should have:
EAD: Exploring & using media and materials • Manipulates materials to achieve a planned effect • Constructs with a purpose in mind, using a variety of resources • Selects appropriate resources and adapts work where necessary • Selects tools and techniques needed to shape, assemble and join materials they are using. • Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function	• Solving problems linked to materials or contexts being explored in science • Measuring, estimating and interpreting scales, • calculating costs or capacities links to maths • Exploring foods from different cultures and festivals links to geography and RE topics • Use of electrical systems or discussion of forces • involved in movement ties in with science • Large crossover with art skills when considering finish, choice of materials & product appearance • 'Learning to use equipment safely and independently' elements have strong PSHE link •	• Produce something of their own that makes them go, "Wow!" • Have opportunities to use things they have made - recognising that their work really is purposeful and practical • Take things to bits to find out how they're held together and how they work • See something they have constructed move under its own power • Use saws, hammers, hand drills and other 'grown-up' tools (and know how to use them safely) • Build something bigger than them

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Opportunities to develop and use Learning Powers in our curriculum	
Curiosity	• Investigating machines and mechanisms • Taking things apart to find out how they work • Developing understanding through questioning - How does that work? Why does that happen? • Exploring the capabilities, potential and limitations of materials • Having opportunities to try things out, go wrong and take risks
Independence	• Developing imaginative and innovative solutions to problems • Selecting tools, materials and equipment, and justify choices • Considering how to use materials, equipment and electricity safely and responsibly • Understanding how to cook safely and hygienically • Learning skills needed by independent adults (e.g., cooking a range of meals, sewing on buttons, making simple repairs)
Empathy	• Considering the needs, wants and preferences of others when designing • Understanding issues of sustainability, recycling and the environmental impact of items, and recognise how products may have an impact beyond those that were initially intended • Making products to be used by others, and consider their expectations in terms of functionality and finish • Giving honest feedback to others so that they can develop and improve their work
Perseverance	• Setting ambitious goals for a task - What can we do that will make this better? Can we come up with a more innovative, interesting solution to this problem? • Showing commitment to finding out answers and solving problems • Maintaining attention on a long-term project (e.g., designing, shaping, assembling and testing over the course of several weeks) • Coping with setbacks and demonstrate resourcefulness when tackling practical problems
Reflectiveness	• Breaking complex problems down into small steps and developing logical thinking • Evaluating products at several stages during the design and assembly process, and looking to continually revise and improve • Developing own design criteria and ways in which these can be tested • Using findings from enquiries, investigations, discussion or product analysis to draw conclusions • Taking feedback from others and using this to make improvements to a design
Cooperation	• Presenting and sharing work with others • Working in teams to complete complex tasks that could not be accomplished independently • Imitating the work and design of others - both peers and 'real world' designers and inventors • Sharing resources, ingredients and tools • Exploring textiles, foods and festivals from other cultures and treating these with respect

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Year group	Structures	Mechanisms	Textiles	Food
Year 1	• Discuss what makes a building 'strong' (e.g., with reference to houses built during the Great Fire of London) • Select appropriate materials (which can be cut or shaped, e.g., cardboard) • Use cutting, gluing, tying, taping to shape and join materials • Test models • Suggest ways they could be strengthened and improved	• Explore and evaluate books and products with moving parts, including those with sliders and levers • Develop understanding of the way sliders and levers can create movement • Develop & share design ideas • Use cutting, gluing & taping to shape and join materials • Use art & design techniques to create a finished product	• Generate ideas for a product by drawing on their own experiences • Say how the product will suit its intended user • Cut, shape and join materials to make a product with a particular purpose (e.g.,kites) • Say what they like and dislike about finished products	• Know that all food comes from plants or animals • Talk about what foods we should eat to stay healthy • Prepare fruit and vegetables for eating safely and hygienically (without using a heat source) • Compare the taste and texture of different foods • Use mixing to make cakes, pastries or crumbles
Year 2	• Explore existing freestanding structures & identify features that make them strong • Generate design ideas for a given context (e.g., chairs for story characters or pet cages) • Agree design criteria • Measure, mark-out, cut and shape materials • Select tools / methods for cutting, joining and assembling	• Explore different vehicles - what is similar and different about them? Identify wheels, axles, chassis etc. • Build models from construction kits / materials (e.g., Le.go) • Explore ways of joining wheels to allow movement • Build models and suggest ways they could be tested out	• Design a functional, appealing product for a chosen user • Use templates to mark-out materials for cutting • Choose materials based on their functional and aesthetic properties • Join fabrics using a running stitch (e.g., to make a puppet) • Suggest how products could be improved	• Know that food can be farmed, grown elsewhere (e.g., at home) or caught • Name and sort foods into the five groups shown in the Eatwell Guide • Use cutting, peeling and grating to prepare ingredients • Use ovens to bake cakes etc. (Christams) • Evaluate through taste-testing and user feedback
Year 3	• Investigate and evaluate shell structures (boxes, packaging, nets of shapes etc.) • Develop practical ideas to solve a real-world problem • Select materials and tools appropriate to the task • Measure, shape, cut and join materials with some accuracy • Use art and design skills to finish the product attractively	• Investigate the use of levers and linkages to create more complex movement (e.g., in pop-up books or greetings cards) • Explore the effect of fixed and loose pivots on movement • Develop design ideas linked to a specific purpose • Measure, shape, cut and join materials with some accuracy • Identify strengths and areas for improvement in products	• Develop ideas for a real-world design problem (e.g., Eygptian Museum) by gathering information on the wants and needs of users • Share and model ideas using sketches and diagrams • Justify choice of materials • Measure, shape, cut and join materials with some accuracy • Sew on buttons, handles, tags etc to finish the product	• Use local-grown ingredients in cooking • Make tortilla wraps and creating ingredients to fill it • Generate ideas and plan a dish for a specific purpose • Know a range of appropriate ingredients, and whether they are grown, reared or caught

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Year group	Structures	Mechanisms	Textiles	Food
Year 4	• Create models to further understanding in other areas of the curriculum (e.g., 3d models Anglo-Saxon village) • Use annotated sketches to develop and share ideas • Select materials based on their properties and availability • Use a wider range of techniques to shape and join materials (e.g., saws, glue guns)	• Examine and disassemble a simple battery-powered product, identifying key parts of the electrical circuit • Explore and make different types of simple switches • Know how to use electricity safely • Design and make a battery- powered product (e.g., a night alarm) • Evaluate using design criteria	• Analyse items of materials linked to another area of the curriculum (e.g., historical period Shang Dynasty) using annotated sketches • Identify design features & develop design criteria • Use measurement and pattern pieces to create clothing fitted to a specific user • Evaluate finished pieces using agreed design criteria	• Know that, to be active and healthy, food and drink are needed to provide energy for the body • Prepare savoury dishes using peeling, chopping, slicing and mixing • Recognise the steps needed to prepare food safely and hygienically • Plan, carry out and record evaluations of food produced
Year 5	• Use cross-sectional drawings and exploded diagrams to develop and share ideas • Accurately measure, saw and sand wood and plastic for use in construction • Test, evaluate and improve prototypes before producing final products	• Design a product including a cam mechanism (e.g., a moving toy), taking into consideration the needs, wants and preferences of users • Model ideas using diagrams, sketches and prototypes • Accurately apply a range of finishing techniques	• Explore the concept of *sustainability* and the long-term impact of products • Carry out research, using surveys, interviews and questionnaires • Generate innovate ideas • Accurately measure, mark, join and assemble materials • Justify design decisions	• Know that seasons may affect the food that is available • Identify the different substances (nutrients, vitamins, fibre, protein etc.) that are needed for health • Use cooking methods to cook food • Write a step-by-step recipe, including ingredients and equipment needed • Decorate and present food
Year 6	• Produce a large-scale construction • Investigate and analyse existing / historical products based on sustainability, innovation and cost • Generate innovative ideas, based on research • Apply skills learnt across the key stage to construct, test evaluate and refine product	• Develop a design for a functional product that responds automatically to changes in the environment • Apply computing skills to program, monitor and control products • Test and evaluate the system to demonstrate its effectiveness • Learn about famous inventors	• Disassemble a real-world textile item (e.g., slippers) & use exploded diagrams to identify how it is constructed, materials used etc. • Separate design criteria into *functional* and *aesthetic* • Design product for a specific user, considering their needs • Apply skills learnt across the key stage to construct, test evaluate and refine product	• Understand the environmental impact of food decisions (e.g., 'air miles' on out of season fruits and vegetables) • Plan a meal for a specific occasion / festival, taking into account the needs and expectations of those who will eat it • Prepare this meal using a wide range of skills • Present the meal and evaluate