KS2 DT	Year 3 – Summer – Structures – Pencil Pots

Design	Make	Evaluate
- Develop more than one design or adaptation of an initial design. - Plan a sequence of actions to make a product. - Record the plan by drawing using annotated sketches. - Begin to use cross-sectional and exploded diagrams. - Use prototypes to develop and share ideas. - Think ahead about the order of their work and decide upon tools and materials. - Propose realistic suggestions as to how they can achieve their design ideas. - Consider aesthetic qualities of materials chosen. - Use CAD where appropriate.	- Prepare pattern pieces as templates for their design. - Cut slots. - Cut internal shapes. - Select from a range of tools for cutting shaping joining and finishing. - Use tools with accuracy. - Select from techniques for different parts of the process. - Select from materials according to their functional properties. - Plan the stages of the making process. - Use appropriate finishing techniques.	- Investigate similar products to the one to be made to give starting points for a design. - Draw/sketch products to help analyse and understand how products are made. - Research needs of user. - Identify the strengths and weaknesses of their design ideas in relation to purpose/user. - Decide which design idea to develop. - Consider and explain how the finished product could be improved. - Discuss how well the finished product meets the design criteria of the user. - Investigate key events and individuals in Design and Technology.

Key Learning	Vocabulary	Inventor- Stephanie Kwolek
- Develop vocabulary related to the project. - Create shell or frame structures. - Strengthen frames with diagonal struts. - Make structures more stable by giving them a wide base. - Measure and mark square section, strip and dowel accurately to 1cm.	• cut, fold, join, fix • structure, wall, tower, framework, • weak, strong, • base, top, underneath, side, edge, surface, • thinner, thicker, • corner, point, straight, curved, • metal, wood, plastic • circle, triangle, square, rectangle, cuboid, cube, cylinder	 In 1965 Stephanie Kwolek created the first of a family of synthetic fibres of exceptional strength and stiffness. The best-known member is Kevlar, a material used in protective vests as well as in boats, airplanes, ropes, cables, and much more—in total about 200 applications.

National Curriculum links:

- Develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully 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

Design	Make	Evaluate	Technical knowledge
• Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups • Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design	• Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately • Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities	• Investigate and analyse a range of existing products • Evaluate their ideas and products against their own design criteria and consider the views of others to improve • Understand how key events and individuals in design and technology have helped shape the world shape the world	• Apply their understanding of how to strengthen, stiffen and reinforce more complex structures • Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] • Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] • Apply their understanding of computing to program, monitor and control their products.