Design and Technology

Quote: *"Design is not just what it looks like and feels like. Design is how it works."* **– Steve Jobs**

Intent: At Cannington Primary School, Design and Technology inspires children to become creative thinkers, problem-solvers and innovators. Rooted in our Christian values, our curriculum encourages learners to explore how products are designed and made, and how they can use their own ideas to improve the world around them.

Through practical, hands-on experiences, children develop the knowledge, skills and confidence to design, make and evaluate products for real purposes. They learn to take risks, work collaboratively and show resilience as they refine and improve their ideas. Through cooking and nutrition, children develop an understanding of healthy living and sustainability, helping them make informed choices for themselves and their communities.

By learning about significant designers, inventors and engineers from a range of backgrounds, children are inspired to think creatively and ambitiously about the future. We want every child to leave Cannington as a resourceful, reflective and confident designer, ready to contribute to an ever-changing world.

Curriculum Overview						
	Autumn 1	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
Ash	Exploring using Play Doh Food nutrition	Designing and making cards Making rockets	Construction of bridges and the use of different materials			Food nutrition and cooking
Oak	Textiles: How can I make a puppet?		Mechanisms: How can I make a moving vehicle?		Cooking and Nutrition: How can I make a fruit/vegetable smoothie	
Pine	Structures: How can I make stable, free standing structure?		Mechanisms: How can I make a product that moves using linkages?		Cooking and Nutrition: How can I use fruit/vegetables in cooking?	
Hazel, Beech & Willow Cycle A	Structures: How can I make a wooden stable structure that supports weight?		Textiles: How can I make a cushion?		Cooking and Nutrition: How can I adapt a recipe to make it healthier?	
Hazel, Beech & Willow Cycle B	Electrical Systems: How can I make a product that lights up?	Textiles	Mechanisms: How can I make a pop up product?		Cooking and Nutrition: Ho can I bake a food product?	
Hazel, Beech & Willow Cycle C	Structures: How can I make a shell structure?		Textiles: How can I make an item of clothing?		Cooking and Nutrition: How can I make a three course meal?	

Hazel, Beech & Willow Cycle D	Electrical Systems: How can I make a game that has an electrical element?		Mechanisms: How can I make a product that moves using linkages?		Cooking and Nutrition: How can I design a Victorian menu?	

Cycles Explained

Children in Years 3, 4, 5 and 6 follow a four-year rolling programme. This approach ensures that all required knowledge and content from the National Curriculum is taught and revisited, enabling every pupil to experience the full curriculum by the end of Key Stage 2.

While the curriculum content is organised within the rolling programme, skills and learning objectives are carefully planned and delivered according to each year group's expectations. This ensures that lessons provide appropriate challenge and progression, meeting the needs of all learners and supporting children in developing age-related knowledge, understanding and skills.

Design & Technology Skills Progression Grid (Years 1-6)

Strand	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Designing	Use templates to create designs for puppets, vehicles and food products. Draw and label simple ideas.	Generate ideas through sketching and modelling. Design structures, moving products and healthy foods to meet simple criteria.	Design products for a purpose and audience. Create detailed design criteria and annotated ideas.	Develop designs using technical knowledge and user needs. Create storyboards and product specifications.	Design products for a specific customer or purpose. Annotate plans and consider aesthetics as well as function.	Generate detailed designs from research. Consider function, audience, historical context and product effectiveness.
Making: Structures	Build simple vehicles using wheels, axles and chassis.	Construct stable freestanding structures using folding, joining and strengthening techniques.	Build wooden bridges using accurate measuring, marking and sawing techniques.	Construct electrical products and pop-up mechanisms with increasing precision.	Create shell structures using nets, facades and recycled materials.	Design and construct products combining structures with electrical elements.
Mechanisms & Mechanical Systems	Understand wheels, axles and axle holders. Create moving vehicles.	Make products using levers, pivots and linkages. Understand input and output.	Understand reinforcement and structural engineering principles.	Use sliders, pivots, folds and linkages to create moving pop-up products.	Apply mechanisms within complex structures and textiles projects.	Combine mechanical and electrical components to achieve a designed outcome.
Electrical Systems	N/A	N/A	Understand simple electrical circuits with switches, bulbs and batteries.	Construct simple electrical circuits with switches, bulbs and batteries.	Understand conductors, insulators and complete circuits. Design products	Design and build electrical games using circuits, buzzers, LEDs and switches.

Strand	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
					incorporating electrical systems.	
Textiles	Cut fabric safely, join materials using glue, staples or pins, decorate puppets.		Use running stitch, cross stitch, appliqué and stuffing to make cushions.	Develop sewing accuracy and textile construction.	Design and make items of clothing using templates, seams, stitches and fastenings.	Select and apply textile techniques independently to meet a design brief.
Cooking & Nutrition	Prepare simple smoothies safely; identify fruits and vegetables and where they come from.	Prepare healthy fruit and vegetable products; understand food groups and balanced diets.	Adapt recipes to improve nutritional value; understand food hygiene and cross-contamination.	Follow recipes, budget ingredients and use baking techniques such as sieving, creaming and rubbing-in.	Plan and prepare a healthy three-course meal; understand seasonality and food production.	Design menus for a purpose, applying knowledge of nutrition, food preparation, seasonality and provenance.
Tools & Equipment	Use scissors, peelers and simple kitchen equipment safely.	Use cutting, joining and food preparation equipment safely.	Measure, mark, cut and join materials accurately. Use saws safely.	Use electrical and construction tools accurately and safely.	Use sewing equipment and construction techniques with precision.	Select and use appropriate tools independently and safely.
Evaluating	Explain likes and dislikes and suggest simple improvements.	Test products against design criteria and identify strengths and weaknesses.	Adapt and improve products after testing. Compare own work with others.	Evaluate products against design briefs and user needs.	Refine products using peer and self-evaluation.	Critically evaluate products for purpose, function, aesthetics and effectiveness.

National Curriculum Design & Technology Expectations Progression

Strand	KS1 (Years 1-2)	KS2 (Years 3-6)
Designing	Design purposeful, functional and appealing products for themselves and others based on design criteria. Generate, develop and communicate ideas through talking, drawing, templates, mock-ups and ICT.	Use research and design criteria to develop innovative, functional and appealing products that are fit for purpose. Communicate ideas through discussion, annotated sketches, prototypes, pattern pieces, exploded diagrams and computer-aided design (CAD).
Making	Select and use a range of tools and equipment to cut, shape, join and finish products. Select materials and components according to their characteristics.	Select and use a wider range of tools, equipment, materials and components accurately, considering both functional properties and aesthetic qualities.
Evaluating	Explore and evaluate existing products. Evaluate own ideas and products against design criteria.	Investigate and analyse existing products. Evaluate products against their own design criteria and consider the views of others to improve their work. Understand how key events and individuals have shaped design and technology.
Structures	Build structures and explore how they can be made stronger, stiffer and more stable.	Apply understanding of how to strengthen, stiffen and reinforce more complex structures.
Mechanisms	Explore and use simple mechanisms such as levers, sliders, wheels and axles in products.	Understand and use mechanical systems such as gears, pulleys, cams, levers and linkages.
Electrical Systems	.	Understand and use electrical systems in products, including series circuits with switches, bulbs, buzzers and motors.
Cooking & Nutrition	Use basic principles of a healthy and varied diet to prepare dishes. Understand where food comes from.	Understand and apply the principles of a healthy and varied diet. Prepare and cook a range of predominantly savoury dishes using a variety of cooking techniques. Understand seasonality and know

Strand	KS1 (Years 1-2)	KS2 (Years 3-6)
		where and how ingredients are grown, reared, caught and processed.
Technical Knowledge	Build knowledge of structures, mechanisms and materials through practical experiences.	Apply understanding of mechanical systems, electrical systems and computing to monitor and control products.
Innovation & Problem Solving	Begin to solve practical problems through designing and making.	Apply creative, technical and practical expertise to solve real and relevant problems for particular users.

End of Key Stage Expectations

Key Stage 1

Pupils should be able to:

- Design purposeful, functional and appealing products based on design criteria.
- Generate and communicate ideas through drawing, talking, templates and mock-ups.
- Use tools and materials to make products.
- Evaluate existing products and their own work.
- Build structures and use simple mechanisms.
- Prepare food using the principles of a healthy diet and understand where food comes from.

Key Stage 2

Pupils should be able to:

- Research, design and develop products for specific users and purposes.

- Use a wide range of tools, materials and components accurately.
- Evaluate and improve products using their own design criteria and feedback from others.
- Apply understanding of structures, mechanisms and electrical systems.
- Apply computing to monitor and control products.
- Prepare and cook a range of dishes and understand seasonality and food production.
- Understand the impact of significant designers, engineers and technological developments.

National Curriculum Aims

By the end of primary education, all pupils should:

- Develop the creative, technical and practical expertise needed to perform everyday tasks and participate in an increasingly technological world.
- Build and apply a repertoire of knowledge, understanding and skills to design and make high-quality products for a range of users.
- Critique, evaluate and test their ideas, products and the work of others.
- Understand and apply the principles of nutrition and learn how to cook.

This matches the format used for your Art & Design and Computing expectation grids and can sit directly within a curriculum handbook or subject leadership file.