Bishop Cornish CE VA Primary School

Design and Technology

Progression Map

Intent

At Bishop Cornish we pride ourselves in planning and delivering a broad and balanced curriculum, ensuring that its delivery is exciting, interactive and enables children to 'build memories.' It is bespoke to the needs of the children, not only by focusing on appropriate subject specific knowledge, skills and understanding as set out in the National Curriculum, but by developing individual and collaborative learning experiences, a positive growth mind set, a sense of responsibility and challenges that take them beyond the classroom and promote a life-long love of learning. We are fortunate that our learning environment allows us to use the outdoors as much as possible and this enhances the children's experiences. Outdoor learning is integral to all subjects – core and foundation. Creative ways are found by the teaching staff to design active opportunities to learn. Our Curriculum has been planned to ensure each and every child can 'live life in all its fullness' by offering stimulating and awe-inspiring learning experiences with Christian values at its heart.

Ultimately our curriculum is intended to:

- Develop our head and body: What we learn
- Develop our hearts and character: Who we are
- Develop our actions and attitudes: How we live and learn
- Develop our moral compass: Where we fit in the world.

As educators, we understand the importance of mental health, and aim to create emotionally sound, resilient and well-regulated children. Our curriculum aims to do this using the model of 'PLACE' –being Playful, Loving, Accepting, Curious and Empathic. This way of thinking, feeling, communicating and behaving aims to make each child feel safe and happy, enabling them not only to learn, but to develop a love of learning.

We set the highest standards of attainment for all our children. We also value the breadth of the curriculum that we provide. We foster creativity in our children, and to help them become independent learners. Above all we believe in making learning enjoyable, motivating, fun and purposeful!

Level Expected at the End of EYFS

We have selected the Early Learning Goals that link most closely to the History National Curriculum.

Physical Development:

ELG: Fine Motor Skills

Use a range of small tools, including scissors, paint brushes and cutlery.

Personal, Social and Emotional Development:

ELG: Managing Self

Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices.

Expressive Arts and Design ELG:

Creating with Materials

Children at the expected level of development will:

Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function;

Share their creations, explaining the process they have used.

Purpose of study	
The national curriculum for subject aims to ensure that all pupils:	
Key Stage 1 National Curriculum Expectations	**Key Stage 2 National Curriculum Expectations**
Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home and school, gardens and playgrounds, the local community, industry and the wider environment]. When designing and making, pupils should be taught to: **Design** • design purposeful, functional, appealing products for themselves and other users based on design criteria • generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology **Make** • select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] • select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics **Evaluate** • explore and evaluate a range of existing products • evaluate their ideas and products against design criteria Technical knowledge • build structures, exploring how they can be made stronger, stiffer and more stable •explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.	Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment]. When designing and making, pupils should be taught to: **Design** • 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 **Make** • 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 **Evaluate** • 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 their work • understand how key events and individuals in design and technology have

Cooking and nutrition

As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life

- use the basic principles of a healthy and varied diet to prepare dishes
- understand where food comes from.

helped shape the world

Technical knowledge

- 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.

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- understand and apply the principles of a healthy and varied diet prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques
- understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.

Concepts	KS1	LKS2	UKS2
Design	**KS1 Design and Technology National Curriculum** *Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in the design process.* *They should work in a range of relevant contexts.* Children design purposeful, functional, appealing products for themselves and other users based on design criteria. *They generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology.* Children can: • use their knowledge of existing products and their own experience to help generate their ideas; • design products that have a purpose and are aimed at an intended user; • explain how their products will look and work through talking and simple annotated drawings; • design models • plan and test ideas using • mock- ups; • understand and follow simple design criteria; • work in a range of relevant contexts,	**KS2 Design and Technology National Curriculum** *Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing.* *They should work in a range of relevant contexts.* *Children 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.* *They generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer- aided design.* Children can: • identify the design features of their products that will appeal to intended customers; (E.g. Year 3 Pasty, Yr4 Egyptian necklaces and roman purses) • use their knowledge of a broad range of existing products to help generate their ideas; • design innovative and appealing products that have a clear purpose and are aimed at a specific user; • explain how particular parts of their products work; • use annotated sketches and cross-sectional drawings to develop and communicate their ideas; • when designing, explore different	**KS2 Design and Technology National Curriculum** *Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing.* *They should work in a range of relevant contexts.* *Children 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.* *They generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer- aided design.* Children can: • use research to inform and develop detailed design criteria to inform the design of innovative, functional and appealing products that are fit for purpose and aimed at a target market; • use their knowledge of a broad range of existing products to help generate their ideas; • design products that have a clear purpose and indicate the design features of their products that will appeal to the intended user • explain how particular parts of their products work; • use annotated sketches, cross-sectional drawings and exploded

	Year 1 design and make: • Puppets (textiles, sewing) • A spacecraft for an alien (junk materials) • A fruit Kebab • A mystical creature with moving parts, using folding, pivoting, bending **Year 2 design and make:** • A model aeroplane (related to The Right Brothers, in History), using wheels and axles and junk materials, • A Victorian toy with moving parts, using levers and sliders • A Victorian sampler – sewing • A South African stew	initial ideas before coming up with a final design; • when planning, start to explain their choice of materials and components including function and aesthetics; • test ideas out through using prototypes; • i use computer-aided design to develop and communicate their ideas; • develop and follow simple design criteria; • work in a broader range of relevant contexts. **Year 3 DT topics** • Creating a mini theatre with characters with moving parts. • Design and make pasties. • Tribal bag using fabric • Rainforest salad • Design a shelter for a stone age family (outdoor learning – woods) **Year 4 DT topics** • Design and make Egyptian necklaces, • Spanish food • Design and make Roman Purses.	diagrams (possibly including computer-aided design) to develop and communicate their ideas; • generate a range of design ideas and clearly communicate final designs; • consider the availability and costings of resources when planning out designs; • work in a broad range of relevant contexts. **Year 5 DT Topics** • Design a Greek wedding • Create a biome structure on Mars • Viking felted shawls/blankets • *Design a computer game in Computing* **Year 6 DT Topics** • WW2 VE party (including wartime food); • WW2 Make do and mend project • WW2 design and make a Morse code buzzer. • Design a bridge/tourist attraction across the Colca canyon, Peru • Design a Tudor kitchen garden with wattle and daub fencing.
Make	**KS1 Design and Technology National Curriculum** *Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of making.* *Children select from and use a range of tools*	**KS2 Design and Technology National Curriculum** *Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of making.* *Children select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and*	**KS2 Design and Technology National Curriculum** *Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of making.* *Children select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining*

	and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]. *They select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics.* Children can: **Planning** • with support, follow a simple plan or recipe; • begin to select from a range of hand tools and equipment, such as scissors, skewers, safe knives, • select from a range of materials, textiles and components according to their characteristics; **Practical skills and techniques** • learn to use hand tools and kitchen equipment safely and appropriately and learn to follow hygiene procedures; • use a range of materials and components, including textiles and food ingredients; • with help, measure and mark out; • cut and shape materials with some accuracy; • assemble, join and combine materials, components or ingredients; • demonstrate how to cut, shape and join fabric to make a simple product; • manipulate fabrics in simple ways to create the desired effect;	*finishing] accurately.* *They 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.* Children can: **Planning** • with growing confidence, carefully select from a range of tools and equipment, explaining their choices; e.g. When making pasties and Spanish food. • select from a range of materials and components according to their functional properties and aesthetic qualities; e.g. Egyptian necklaces and beads, Fabrics button etc. for purses. • place the main stages of making in a systematic order; **Practical skills and techniques** • learn to use a range of tools and equipment safely, appropriately and accurately and learn to follow hygiene procedures e.g. Cookery • use a wider range of materials and components, including construction materials and kits, textiles; E.g Dioramas with moving parts. • with growing independence, measure and mark out to the nearest cm and millimetre; • cut, shape and score materials with some degree of accuracy; • assemble, join and combine material	*and finishing], accurately.* *They 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.* Children can: **Planning** • independently plan by suggesting what to do next; • with growing confidence, select from a wide range of tools and equipment, explaining their choices; • select from a range of materials and components according to their functional properties and aesthetic qualities • create step-by-step plans as a guide to making; **Practical skills and techniques** • learn to use a range of tools and equipment safely and appropriately and learn to follow hygiene procedures; • independently take exact measurements and mark out, to within 1 millimetre; • use a full range of materials and components, including construction materials and kits, textiles, and mechanical components; • cut a range of materials with precision and accuracy; • shape and score materials with precision and accuracy;

	• use a basic running stitch; • cut, measure and weigh out ingredients; • begin to use simple finishing techniques to improve the appearance of their product, such as adding • simple decorations.	and components with some degree of accuracy; • demonstrate how to measure, cut, shape and join fabric with some accuracy to make a simple product; • join textiles with an appropriate sewing technique; Year 4 Running stitch, chain stitch and sewing buttons.	• assemble, join and combine materials and components with accuracy; • demonstrate how to measure, make a seam allowance, tape, pin, cut, shape and join fabric with precision to make a more complex product; (WWII – make do and mend) • refine the finish using techniques to improve the appearance of their product, such as sanding or a more precise scissor cut after roughly cutting out a shape.
Evaluate	**KS1 Design and Technology National Curriculum** *Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making.* *Children explore and evaluate a range of existing products. They evaluate their ideas and products against design criteria.* Children can: • explore and evaluate existing products mainly through discussions, comparisons and simple written evaluations; • explain positives and things to improve for existing products;	**KS2 Design and Technology National Curriculum** *Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making.* *Children investigate and analyse a range of existing products.* *They evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.* *They understand how key events and individuals in design and technology have helped shape the world.* Children can: • explore and evaluate existing products, explaining the purpose of the product and whether it is designed well to meet the intended purpose; • explore what materials/ingredients products are made from and suggest reasons for this;	**KS2 Design and Technology National Curriculum** *Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making.* *Children investigate and analyse a range of existing products.* *They evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.* *They understand how key events and individuals in design and technology have helped shape the world.* Children can: • complete competitor analysis of other products on the market; (Yr 5) • critically evaluate the quality of design, manufacture and fitness for purpose of products as they design and make; • evaluate their ideas and products against the original design criteria,

	• explore what materials products are made from; • talk about their design ideas and what they are making; • as they work, start to identify strengths and possible changes they might make to refine their existing design; • evaluate their products and ideas against their simple design criteria;	• consider their design criteria as they make progress and are willing to alter their plans, sometimes considering the views of others if this helps them to improve their product; • evaluate their product against their original design criteria; • evaluate the key events, including technological developments, and designs of individuals in design and technology that have helped shape the world.	making changes as needed.
Technical knowledge	**KS1 Design and Technology National Curriculum** *Children build structures, exploring how they can be made stronger, stiffer and more stable.* *They explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.* Children can: • build simple structures, exploring how they can be made stronger, stiffer and more stable; • talk about and start to understand the simple working characteristics of materials and components;	**KS2 Design and Technology National Curriculum** *Children apply their understanding of how to strengthen, stiffen and reinforce more complex structures.* *They understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages].* *They apply their understanding of computing to program, monitor and control their products.* Children can: • understand that materials have both functional properties and aesthetic qualities; e.g utilising materials when making Roman Purses. • apply their understanding of how to	**KS2 Design and Technology National Curriculum** *Children apply their understanding of how to strengthen, stiffen and reinforce more complex structures.* *They understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages].* *They understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors – (**Cross curricular link: Yr6 design and make a Morse code buzzer).*** *They apply their understanding of computing to program, monitor and control their products **(Cross curricular link: Yr 5 design a computer game in Computing)*** Children can: • apply their understanding of how to strengthen, stiffen and reinforce more complex structures in order to create more useful characteristics of products; **(Yr 5 biomes; Yr6 Bridge)**

	• explore and create products using mechanisms, such as levers, sliders and wheels.	strengthen, stiffen and reinforce more complex structures in order to create more useful characteristics of products.	• understand and demonstrate that mechanical and electrical systems have an input, process and output **(As part of electricity focus in science – Yr 6)** • explain how mechanical systems, such as cams, pulleys, create movement and use mechanical systems in their products; • apply their understanding of computing to program, monitor and control a product.
Cooking and Nutrition	**KS1 Design and Technology National Curriculum** *Children use the basic principles of a healthy and varied diet to prepare dishes.* *They understand where food comes from.* Children can: • explain where in the world different foods originate from; • understand that all food comes from plants or animals; • understand that food has to be farmed, grown elsewhere (e.g. home) or caught; • name and sort foods into the five groups in the Eatwell Guide (through science and PSHE, and Year 2 stew design	**KS2 Design and Technology National Curriculum** *Children understand and apply the principles of a healthy and varied diet.* *They prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques.* *They understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.* Children can: • start to know when, where and how food is grown (such as herbs, tomatoes and strawberries) in the UK, Europe and the wider world; • understand how to prepare and cook a variety of predominantly savoury dishes safely and hygienically; • with support, use a heat source to cook ingredients showing awareness of the need to control the temperature of the hob and/or oven;	**KS2 Design and Technology National Curriculum** *Children understand and apply the principles of a healthy and varied diet.* *They prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques.* *They understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed*. Children can: • know, explain and give examples of food that is grown (such as pears, wheat and potatoes), reared (such as poultry and cattle) and caught (such as fish) in the UK, Europe and the wider world; • understand about seasonality, how this may affect the food availability and plan recipes according to seasonality; • understand that food is processed into ingredients that can be eaten or

	product) • understand that everyone should eat at least five portions of fruit and vegetables every day and start to explain why; • use what they know about the Eatwell Guide to design and prepare dishes.	• use a range of techniques such as mashing, whisking, crushing, grating, cutting, kneading and baking; • explain that a healthy diet is made up of a variety and balance of different food and drink, as represented in the Eatwell Guide and be able to apply these principles when planning and cooking dishes; • understand that to be active and healthy, nutritious food and drink are needed to provide energy for the body; • prepare ingredients using appropriate cooking utensils; • measure and weigh ingredients to the nearest gram and millilitre; • start to independently follow a recipe; • start to understand seasonality.	used in cooking; • demonstrate how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source; • demonstrate how to use a range of cooking techniques, such as grilling, frying, boiling and baking; • explain that foods contain different substances, such as protein, that are needed for health and be able to apply these principles when planning and preparing dishes; • adapt and refine recipes by adding or substituting one or more ingredients to change the appearance, taste, texture and aroma; • alter methods, cooking times and/or temperatures; • measure accurately and calculate ratios of ingredients to scale up or down from a recipe; • independently follow a recipe. **Yr 5 – Greek foods, use of spice and herbs, designing a meal for a Greek wedding** **Yr 6 Tudor food for an Epiphany feast, WWII rationing/ VE party; RE – joint Yr5/6 Hindu celebration meal – using the woods/outdoor learning; cooking on fire)** **Yr 6 pick seasonal apples and blackberries from school grounds to make jam (preserving), crumbles, stewed apple & custard.**