Bishop Ellis Catholic Voluntary Academy

Design and Technology Intent

At Bishop Ellis Catholic Primary School we aim to provide a high-quality design and technology that is inspiring, rigorous and practical. Our children will be given opportunities to use their creativity and imagination to design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. As part of our design and technology curriculum children will be exposed to a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. We expect that our children learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they will develop a critical understanding of its impact on daily life and the wider world.

Our curriculum for design and technology aims to ensure that all pupils:

- develop the creative, technical and practical know-how needed to perform everyday tasks confidently and to contribute positively in an increasingly technological world
- build and apply knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users.
- evaluate and test their ideas and products and the work of others
- understand and apply the principles of nutrition and learn how to cook.

As part of their work with food, children will be taught how to cook and apply the principles of nutrition and healthy eating. We intend children to know that being able to cook is a crucial life skill that enables us to feed themselves and others affordably and well, now and in the future.

At key stage one and two, core knowledge of designing, making, evaluating alongside the technical knowledge and vocabulary of design and technology is mapped out carefully to ensure that the curriculum provides a framework for what children will retain in their long term memory.

BISHOP ELLIS DESIGN TECHNOLOGY CURRICULUM PLAN

EYFS						
TERM	ADVENT 1	ADVENT 2	LENT 1	LENT 2	PENTECOST 1	PENTECOST 2
MAIN TEXT		Rama and Sita Nativity		Oliver's Vegetables	Gingerbread Man	
UNIT OF WORK and KEY CONCEPTS		Structure Temple design and build. To begin to understand that some places are special to members of their community. To freely explore materials to design and develop their own ideas. Design, make and wrap a toy. Explore different materials freely, to develop their ideas about how to use them and what to make. Develop their own ideas and then decide which materials to use to express them. Join different materials and explore different textures.		Cooking To know how to use a knife safely to chop up vegetables. To know how to follow a recipe for an end result Develop confidence competence, precision and accuracy when using small equipment, PD Develop social phrases Use new vocabulary in different contexts.	. Explore using different construction/art materials to build a bridge for the GBM to get across the river. a range of materials for children to construct with. Encourage them to think about and discuss what they want to make. Discuss problems and how they might be solved as they arise. Reflect with children on how they have achieved their aims. Teach children different techniques for joining materials, such as how to use adhesive tape and different sorts of glue	Structure

BISHOP ELLIS DESIGN TECHNOLOGY CURRICULUM PLAN

YEAR 1						
TERM	ADVENT 1	ADVENT 2	LENT 1	LENT 2	PENTECOST 1	PENTECOST 2
UNIT OF WORK, and KEY CONCEPTS		Frame structures: bridges Design, Make, Materials This unit introduces pupils to structures. It focuses on bridge building and introduces cutting, folding, and joining techniques. Pupils make their own bridges, applying their knowledge of structure design. Bridges Using scissors Paper construction techniques Glue and tape Generate ideas through talking and 2D drawing Plan and make a bridge Develop and finish a bridge Test bridge structures		Rotary mechanisms: windmills This unit introduces knowledge of simple rotary mechanisms that create movement. Pupils will investigate how windmills work, consider sail design, and produce a working model that will be tested for stability and movement. Rotary motion Using wind Testing wind sails Select materials for wind sails Selecting an axle for a windmill Make a windmill Finishing and testing windmill mechanisms Presenting final designs	*Food and drink for life* *Consumer awareness* *Food culture* *Food hygiene and safety* *Food preparation and cooking* *Healthy eating and nutrition* *Sensory evaluation* *The science of food* *This unit focuses on food and drink being essential for life. Pupils examine food preferences and the different factors of food choice, and make and evaluate a dish using their senses.* *Eat, drink and grow* *Food likes and dislikes* *Let's make some fruit salad kebabs*	Templates in textiles: puppets Critique and evaluate, Make, Materials, User-centred design. This unit develops pupils' knowledge of the characteristics of non-woven fabrics and their joining techniques. Pupils analyse the techniques used to make fabric products and then apply this knowledge by designing and making a fabric puppet. Fabric characteristics Simple fabric joining techniques Investigate puppets Develop ideas through 2D drawing Plan and make fabric templates Joining puppet templates Applique finishing technique Giving and receiving feedback

BISHOP ELLIS DESIGN TECHNOLOGY CURRICULUM PLAN

YEAR 2						
TERM	ADVENT 1	ADVENT 2	LENT 1	LENT 2	PENTECOST 1	PENTECOST 2
UNIT OF WORK, and KEY CONCEPTS		Levers and sliders: moving cards Design, Make, Materials, Systems. This unit develops pupils' knowledge of simple mechanisms. By making levers and sliders, pupils will apply their knowledge of the characteristics of paper and card to make their own moving cards. Card lever mechanisms Card slider mechanisms Disassemble products to inspire ideas Properties of paper and card Mechanisms in moving cards Joining materials in moving cards Envelopes for moving cards Feedback and evaluation about materials and systems		Wheels and axles: vehicles Make, Materials, Systems. This unit develops pupils' knowledge of wheels and axles. The characteristics of woods will be introduced. Pupils will analyse different vehicles and their structure to design and make their own vehicle. Wheels and axles in vehicles Wheeled products Wood characteristics Wood construction techniques Make a wooden frame Plan and make a vehicle Materials for a specific purpose Test a vehicle	*The Eatwell Guide: healthy eating* *Food hygiene and safety* *Food preparation and cooking* *Healthy eating and nutrition* *The science of food* *This unit introduces pupils to The Eatwell Guide, exploring its key messages and food groups. The composition of healthy meals is examined, focusing on 5 A DAY and drinking plenty. Pupils use a range of food skills to make a healthy wrap based on the Eatwell Guide food groups.* *Introducing The Eatwell Guide* *Healthy meal times* *Making a healthy wrap for lunch*	Freestanding structures: playgrounds Critique and evaluate, Design, User-centred design. Shapes and materials used in playground structures Simple structures Freestanding structures Strong, stiff and stable structures Cardboard construction techniques Plan and make playground structures Develop playground structures Test and talk about the final structure

BISHOP ELLIS DESIGN TECHNOLOGY CURRICULUM PLAN

YEAR 3						
TERM	ADVENT 1	ADVENT 2	LENT 1	LENT 2	PENTECOST 1	PENTECOST2
UNIT OF WORK, and KEY CONCEPTS		Pneumatics: moving toys Critique and evaluate Design Systems This unit introduces pupils to creating movement with air using pneumatic mechanisms. They will then apply this knowledge to develop a moving toy. Make things move with air Pneumatic systems Pneumatic systems and levers Develop ideas through annotated sketches Plan and make a pneumatic system Plan and make a moving monster Assemble and test a moving monster Evaluate pneumatic systems		Shell structures: packaging Critique and evaluate Design Sustainability and climate change This unit develops pupils' knowledge of shell structures. They will critique the packaging of a given product and investigate the sustainability of materials, to create a new packaging design considering its environmental impact. Packaging Shell structures Annotated net sketches Assemble packaging Card construction techniques (new) Strengthen packaging Finish packaging designs Branding packaging	*Food origins: from farm to fork* *Consumer awareness* *Food culture* *Food hygiene and safety* *Food origins and provenance* *Food preparation and cooking* *This unit investigates food grown, reared and caught in the UK and around the globe. Pupils name and locate food origins, expanding their experiences of food and cuisines. They make apple flapjacks, identifying ingredients from the UK.* *Food from around the UK* *Food from around the world* *Making apple flapjack bites*	2D shapes to 3D products: stationery storage. Make, Materials. This unit develops pupils' knowledge and joining techniques when working with woven fabrics. Pupils test and select recycled fabric for functionality. They will use templates and decorative techniques to make a stationery storage product. Fabric joining and cutting techniques Testing fabrics Fabric fasteners Design specification and fabric selection Fabric patterns and seam allowance Using stationery storage product patterns Assemble a stationery storage product Fabric decorative techniques.

BISHOP ELLIS DESIGN TECHNOLOGY CURRICULUM PLAN

YEAR 4						
TERM	ADVENT 1	ADVENT 2	LENT 1	LENT 2	PENTECOST 1	PENTECOST 2
UNIT OF WORK, and KEY CONCEPTS		**Levers and linkages: interactive books** Critique and evaluate Make Systems User-centred design This unit develops pupils' knowledge of mechanisms through levers and linkages. They will apply this knowledge by exploring mechanisms and incorporating them into an interactive book with a user-centred focus. Reverse motion levers and linkages Parallel and push-pull linkages Bell crank and lazy-tong linkages Levers and linkages in products User research Plan and make an interactive book Assembling components for an interactive book Present the book to the user		**Simple programming and control: data loggers** This unit develops pupils' knowledge of simple circuits, programming and control. Fault finding of circuits will be introduced. Pupils will learn how to integrate a BBC Micro:bit in a simple circuit and use sensors to program a light display. Plan and design a data logger case Microcontrollers Using Micro:bit inputs and outputs Micro:bit programs with variables Ada Lovelace Data logger cases Connecting components safely Data logger tests and understanding the data	*The Eatwell Guide: for me and you* *Food hygiene and safety* *Food preparation and cooking* *Healthy eating and nutrition* *The science of food* *In this unit pupils map and plan meals inline with the Eatwell Guide food groups, suggesting improvements for the future. Pupils make a frittata, highlighting the food group included, as well as possible additions.* *My meals the Eatwell Guide way* *Eat well everyday* *Making mini frittatas*	**Textile pattern pieces: hats and caps** Make, Systems This unit introduces pupils to Computer Aided Design and how it can be used to produce fabric templates. Pupils will develop knowledge of fabrics and apply this by selecting fabrics for functionality and aesthetics to design a product. Virgil Abloh and hat design Research interviews Fabric patterns Fabric functional properties Simple pattern pieces Select and make a fabric pattern User feedback to improve the pattern Develop a fabric pattern in response to feedback

BISHOP ELLIS DESIGN TECHNOLOGY CURRICULUM PLAN

YEAR 4/5.						
TERM	ADVENT 1	ADVENT 2	LENT 1	LENT 2	PENTECOST 1	PENTECOST 2
UNIT OF WORK and KEY CONCEPTS		**Cooking and nutrition- Biscuits** Evaluating and comparing a range of products. Following a baking recipe. Understanding safety and hygiene rules. Identifying a target audience. Designing a biscuit within a given budget. Suggesting modifications. Adapting a recipe. Conducting market research. Evaluating an adapted recipe.		**Levers and linkages: interactive books** Critique and evaluate Make Systems User-centred design This unit develops pupils' knowledge of mechanisms through levers and linkages. They will apply this knowledge by exploring mechanisms and incorporating them into an interactive book with a user-centred focus. Reverse motion levers and linkages Parallel and push-pull linkages Bell crank and lazy-tong linkages Levers and linkages in products User research Plan and make an interactive book Assembling components for an interactive book Present the book to the user.		**Textile pattern pieces: hats and caps** Make, Systems This unit introduces pupils to Computer Aided Design and how it can be used to produce fabric templates. Pupils will develop knowledge of fabrics and apply this by selecting fabrics for functionality and aesthetics to design a product. Virgil Abloh and hat design Research interviews Fabric patterns Fabric functional properties Simple pattern pieces Select and make a fabric pattern User feedback to improve the pattern Develop a fabric pattern in response to feedback

BISHOP ELLIS DESIGN TECHNOLOGY CURRICULUM PLAN

YEAR 5 and 6						
TERM	ADVENT 1	ADVENT 2	LENT 1	LENT 2	PENTECOST 1	PENTECOST 2
UNIT OF WORK and KEY CONCEPTS		**CAD structures: architecture** Critique and evaluate Design Sustainability and climate change This unit introduces 3D Computer Aided Design to pupils. They will investigate modern architects to understand the techniques and materials they use in sustainable housing. They will develop knowledge of TinkerCAD to design and present a model sustainable house. Sustainable housing The TinkerCAD user interface Modify 3D shapes Compound 3D shapes Complex 3D shapes Manipulating 3D shapes Develop and model 3D housing Present to a wider audience		**Cooking; Come dine with me.** Writing a recipe, explaining the key steps, method and ingredients. Including facts and drawings from research undertaken. Following a recipe, including using the correct quantities of each ingredient. Adapting a recipe based on research. Working to a given timescale. Working safely and hygienically with independence. Evaluating a recipe, considering: taste, smell, texture and origin of the food group. Taste testing and scoring final products. Suggesting and writing up points of improvements in productions. Evaluating health and safety in production to minimise cross contamination.		**Combining fabrics: accessible textiles** Make, Sustainability and climate change, Systems This unit develops pupils' knowledge and 3D joining techniques when working with woven fabrics. Accessible design is introduced by investigating the work of fashion designers. Pupils apply this knowledge and understanding to make and promote an accessible product. Accessible textile products Select fabrics for functional and aesthetic properties Design action plans Fabric seams and curves Fabric pockets and slots Accessible fasteners Develop and finish an accessible product Impact statements