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

CYCLE A						
TERM	ADVENT 1	ADVENT 2	LENT 1	LENT 2	PENTECOST 1	PENTECOST 2
Reception		Temple design and build. Design, make and wrap a toy.		Cooking- follow a recipe for an end result	Structures- Explore using different construction/art materials to build a bridge for the GBM to get across the river.	
KS1		Structures-constructing a windmill		Textiles		Mechanisms-build a bus axels & wheel
LKS2		Mechanisms- slingshot car		Electrical systems.		Digital- Electronic charm
UKS2		Digital 3D cad		Cooking- come dine with me.		Structures- playgrounds.

CYCLE B						
TERM	ADVENT 1	ADVENT 2	LENT 1	LENT 2	PENTECOST 1	PENTECOST 2
Reception		Temple design and build. Design, make and wrap a toy.		Cooking- follow a recipe for an end result	Structures- Explore using different construction/art materials to build a bridge for the GBM to get across the river.	
KS1		Structures-Tudor houses		Mechanisms- levers and sliders		Food and Nutrition- fruit and vegetables (smoothie)
LKS2		Cooking - eating seasonally		Structures- Design a stable building- castles		Materials- shadow puppets.
UKS2		Mechanical systems- pop up books		Textiles- Waistcoat		Electrical systems

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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		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.		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.	

BISHOP ELLIS DESIGN TECHNOLOGY CURRICULUM PLAN

YEAR GROUP. KS1 CYCLE A						
TERM	ADVENT 1	ADVENT 2	LENT 1	LENT 2	PENTECOST 1	PENTECOST 2
MAIN TEXT	Beegu Everyday Materials Y1	I am Rosa Parks Famous People	Lost and Found Hot& cold places	Traction Man Uses of Everyday Materials	Bog Baby Animals, including humans	Naughty Bus Immediate locality-
Unit of work and key concepts		Structures- windmills. To understand that the shape of materials can be changed to improve the strength and stiffness of structures. To understand that cylinders are a strong type of structure (and, therefore, they are the main shape used for windmills and lighthouses). To understand that axles are used in structures and mechanisms to make parts turn in a circle. To begin to understand that different structures are used for different purposes. To know that a structure is something that has been made and put together.		Textiles- To know that sewing is a method of joining fabric. To know that different stitches can be used when sewing. To understand the importance of tying a knot after sewing the final stitch. To know that a thimble can be used to protect my fingers when sewing. Know how to decorate a pouch using fabric glue or running stitch. Know how to thread a needle. Know how to sew a running stitch, with evenly spaced, neat, even stitches to join fabric.		Mechanisms- ferris wheel To know that wheels need to be round to rotate and move. To understand that for a wheel to move it must be attached to a rotating axle. To know that an axle moves within an axle holder which is fixed to the vehicle or toy. To know that the frame of a vehicle (chassis) needs to be balanced.. To know how axles help wheels to move a vehicle To know how to evaluate different designs. To know how to design and label a working wheel

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YEAR GROUP. KS1 CYCLE B						
TERM	ADVENT 1	ADVENT 2	LENT 1	LENT 2	PENTECOST 1	PENTECOST 2
MAIN TEXT	Toby and the Great Fire of London	Dogger Changes within living memory	Little Evie and the Wild Wood Plants focus (y1)	The Last Tree Plants focus (y2)	Lila and the Secret of the Rain.	Wild. Living things and their habitats (y2)
Unit of work and key concepts		Structures Make a chair for baby bear. To make a structure according to design criteria I can remember that chairs are structures and need to be strong, stiff and stable. To know how to create joints and structures from paper/card and tape. To know that shapes and structures with wide, flat bases or legs are the most stable. To understand that the shape of a structure affects its strength. To know that materials can be manipulated to improve strength and stiffness.		Mechanisms- moving toy Use own ideas to design something and describe how their own idea works Design a product which moves Explain to someone else how they want to make their product and make a simple plan before making Making Use own ideas to make something Make a product which moves Choose appropriate resources and tools Evaluating Describe how something works Explain what works well and not so well in the model they have made.		Food & Nutrition I know how to prepare fruit and vegetables I can use a knife to cut safely I know how to use a blender I can make a smoothie To understand the difference between fruits and vegetables. To understand that some foods typically known as vegetables are actually fruits (e.g. cucumber). To know that a blender is a machine which mixes ingredients together into a smooth liquid. To know that a fruit has seeds and a vegetable does not. To know that fruits grow on trees or vines.

BISHOP ELLIS DESIGN TECHNOLOGY CURRICULUM PLAN

YEAR GROUP. LKS2 CYCLE A						
TERM	ADVENT 1	ADVENT 2	LENT 1	LENT 2	PENTECOST 1	PENTECOST2
MAIN TEXT	History - "Stone age boy" Satoshi Kitamura 5 weeks Science - "The Street beneath my feet." 3 weeks	Geography- Escape from Pompeii. 4 Weeks History - Julius Caesar by Andrew Matthews (adapted Shakespeare play). 4 weeks	Who Let The Gods Out- Max Evans Greek Myths- Marcia Williams. (Shared Reading Text)	Who Let The Gods Out- Max Evans Falling out of the sky (Poetry Anthology).	Life on the Farm (Charlotte's Web by E.B. White) The Incredible book eating boy- Oliver Jeffers.	Band of Angels – Deborah Hopkinson The sound collector by Roger McGough (Poem)
Unit of work and key concepts.		Mechanisms- slingshot car. I can assemble the panels of the body to the chassis correctly I can remember that smaller shapes create less air resistance and can move faster through the air I can evaluate the speed of my design based on the understanding that some cars are faster than others as a result of: • Body shape • Stored energy in the elastic band • Accuracy of the angle in the chassis and axle		Electrical systems. To understand that an electrical system is a group of parts (components) that work together to transport electricity around a circuit. To understand common features of an electric product (switch, battery or plug, dials, buttons etc.) To list examples of common electric products (kettle, remote control etc.) To understand that an electric product uses an electrical system to work (function). To know the name and appearance of a bulb, battery, battery holder and crocodile wire to build simple circuits.		Digital I can identify the key features of a pouch I can develop design ideas for a technology pouch I can use a template when cutting and assembling the pouch To understand that in programming a 'loop' is code that repeats something again and again until stopped. To know that a Micro:bit is a pocket-sized, codeable computer. Know how to write a program to control (button press) and/or monitor (sense light) that will initiate a flashing LED algorithm.

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YEAR GROUP. LKS2 CYCLE B						
TERM	ADVENT 1	ADVENT 2	LENT 1	LENT 2	PENTECOST 1	PENTECOST 2
MAIN TEXT	Giant – Kate Scott	The Buildings that made London- David Long, Josie Shenay	Ancient Egypt- Secrets of the Sun King	The Promise – Nicola Davies I am the seed that grew the tree – Poetry anthology	The Wind in the Willows by Kenneth Grahame (Penguin Classic and original)	Orion and the dark- Emma Yarlett. My Shadow – Robert Louis Stevenson (Poetry)
Unit of work and key concepts.		Food- seasonal I know how to prepare a kitchen to cook in I know how to prepare myself in order to start cooking I know the basic rules of food contamination I can use, store and clean a knife safely I can follow a recipe to make a tart. To know that not all fruits and vegetables can be grown in the UK. To know that climate affects food growth. To know that vegetables and fruit grow in certain seasons. To know that cooking instructions are known as a 'recipe'. To know that imported food is food that has been brought into the country.		Structures- castles To understand that wide and flat based objects are more stable. To understand the importance of strength and stiffness in structures. To know the following features of a castle: flags, towers, battlements, turrets, curtain walls, moat, drawbridge and gatehouse – and their purpose. To know that a façade is the front of a structure. To understand that a castle needed to be strong and stable to withstand enemy attack.		Textiles. To know that appliqué is a way of mending or decorating a textile by applying smaller pieces of fabric. To know that when two edges of fabric have been joined together it is called a seam. To know that it is important to leave space on the fabric for the seam. To understand that some products are turned inside out after sewing so the stitching is hidden.

BISHOP ELLIS DESIGN TECHNOLOGY CURRICULUM PLAN

YEAR GROUP. UKS2 CYCLE A						
TERM	ADVENT 1	ADVENT 2	LENT 1	LENT 2	PENTECOST 1	PENTECOST 2
MAIN TEXT	Kensuke's Kingdom (5 weeks)	Pig Heart Boy (5 weeks) Polar Express (5 weeks)	Tale from Arabian Nights	Holes	The Man Who walked between 2 Towers- Mordecai Gerstein (+ poetry The Lost Words)	Macbeth
Unit of work and key concepts.		Digital World: Navigating the World identify key industries that utilise 3D CAD modelling and explain why. place and manoeuvre 3D objects, using computer-aided design. change the properties of, or combine one or more 3D objects, using computer-aided design to produce a 3D CAD model. To understand that sensors can be useful in products as they mean the product can function without human input. To know that designers write design briefs and develop design criteria to enable them to fulfil a client's request. To know that 'multifunctional' means an object or product has more than one function.		Food – Come Dine with me. To know that 'flavour' is how a food or drink tastes. To know that many countries have 'national dishes' which are recipes associated with that country. To know that 'processed food' means food that has been put through multiple changes in a factory. To understand that it is important to wash fruit and vegetables before eating to remove any dirt and insecticides. To understand what happens to a certain food before it appears on the supermarket shelf (Farm to Fork).		Structures- Playgrounds. To know that structures can be strengthened by manipulating materials and shapes. To understand what a 'footprint plan' is. To understand that in the real world, design can impact users in positive and negative ways. To know that a prototype is a cheap model to test a design idea.

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YEAR GROUP. UKS2 CYCLE B						
TERM	ADVENT 1	ADVENT 2	LENT 1	LENT 2	PENTECOST 1	PENTECOST 2
MAIN TEXT	Jamie Drake Equation	War Horse Beowulf	The Silver Sword + WW2 poetry	The Nowhere Emporium – Ross McKenzie	The Tempest (including The Lighthouse)	Wonder – R. J. Palacio
Unit of work and key concepts.		Mechanical systems. Pop up books. I know an input is the motion used to start a mechanism I know an output is the motion that happens as a result of starting the input I know that structures use the movement of the pages to work I know that mechanisms control movement I can design a book made up of a front cover and four pages and include a mixture of structures and mechanisms within it		Textiles waist coat I can design a waistcoat in accordance with a specification and design criteria to fit a specific theme. I can mark and cut fabric accurately, in accordance with a design. I can sew a strong running stitch, making small, neat stitches and following the edge. I can tie strong knots. I understand that it is important to design clothing with the client/target customer in mind. I know that using a template (or clothing pattern) helps to accurately mark out a design on fabric. I understand the importance of consistently sized stitches.		Electrical systems. I can design a steady hand game, identifying and naming the components required. I can draw a design from different perspectives. I can model ideas through prototypes. I can construct a stable base for a game. I can accurately cut, fold and assemble a net. I can make and test a circuit. I know that 'form' means the shape and appearance of an object. To know the difference between 'form' and 'function'. I understand that 'fit for purpose' means that a product works how it should and is easy to use. work very well.