Fishbourne Church of England Primary School
Design Technology Curriculum Overview – Final Draft

Our Ultimate End Goal:

What will our designers to be able to do when they leave us?

By the time our designers leave Fishbourne Primary they will have become resourceful, innovative, enterprising and capable citizens. They will have been inspired by inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products and in doing so made the world a better place. Our designers will be able to critique, evaluate and test their ideas and products and the work of others. They will use their creativity and imagination with confidence, 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. They will be given the opportunities to collaborate with others and to reflect on the products they have created.

Each year, the children will utilise their skills and knowledge within the field of Design Technology to make the world a better place by designing, making and selling products at the Fishbourne Church and School Fete during the week leading up to the event.

Curriculum Coverage (NC)

What are the most basic requirements from the National Curriculum?

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
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. **Cooking and nutrition:** ♣ use the basic principles of a healthy and varied diet to prepare dishes ♣ understand where food comes from.			**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 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. **Cooking and Nutrition:** ♣ 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 & processed.		

A note about the pedagogy:

At Fishbourne CE Primary, we will use the six essentials of good practice in D&T:

-USER: Children should have a clear idea of who they are designing their project for – considering needs, wants, interests or preferences

-PURPOSE: children should know what the products they design and make are for. It should perform a clearly defined task that can be evaluated in use.

-FUNCTIONALITY: Children should design and make products that function in some way to be successful.

-DESIGN DECISIONS: Children need opportunities to select materials, components and techniques

-INNOVATION: Children need scope to be original in their thinking and need open starting points

-AUTHENTICITY: Children should design and make believable, real and meaningful products.

Each of the learning experiences will ensure that the children have 3 stages of learning:

1) Investigative and Evaluative Activities: Children learn from a range of existing products, learning about D&T in the wider world

2) Focused Tasks: Where they are taught specific technical knowledge, designing skills and making skills

3) Design, Make and Evaluate Assignment: where children create functional products with users and purposes in mind

This Curriculum Map is supported by the Design and Technology Association's (DATA) Project on a Page which will give the teaching team a starting point for their planning.

PROCEDURAL KNOLWEDGE - What skills do we want our designers to have to support the DESIGNING, MAKING and EVALUATING stages? *How will these skills build on what went before and help prepare our children for what is coming next?*						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Designing: -To be able to work confidently within a range of contexts – imaginary, story-based, home, school, gardens, playgrounds, community, industry -To state what products they are designing and making -Say whether products are for themselves or others -Describe what their products are for and how they will work -Say how they will make their products suitable for other users -Use simple design criteria to help develop their ideas -Generate ideas by drawing on their own experiences -Use knowledge of existing products to help come up with ideas -Model ideas by exploring materials and making templates -Use ICT to communicate and develop ideas		Designing: -Work confident within a range of contexts- home, school, culture, leisure, enterprise, industry -Describe the purpose of their products -Indicate the design features of their products that will appeal to intended audiences -Explain how particular parts of their products work -Gather information about the needs and wants of particular groups and individuals -Develop their own design criteria and use these to inform their ideas		Designing: -Work confident within a range of contexts- home, school, culture, leisure, enterprise, industry -Describe the purpose of their products -Indicate the design features of their products that will appeal to intended audiences -Explain how particular parts of their products work -Carry out research, using surveys, interviews, questionnaires and web-based resources -identify the needs, wants, preferences and values of particular individuals and groups -develop a simple design specification to guide their thinking	
	Making: -To be able to plan by suggesting what to do next -To select from a range of tools and equipment, explaining their choices -Select from a range of materials and components according to their characteristics. -Follow procedures for safety and hygiene -Use a range of materials and components -Measure, mark out, cut and shape materials and components -Assemble, join and combine components -Use finishing techniques		Making: -Select tools, equipment, materials and components suitable for the task -Explain their choice of tools and equipment in relation to the skills and techniques they will be using -Explain their choice of materials and components according to functional properties and aesthetic qualities -Order the main stages of making -Measure, mark out, cut and shape materials and components with some accuracy -Assemble, join and combine materials and components with some accuracy -Apply a range of finishing techniques, with some accuracy		Making: -Select tools, equipment, materials and components suitable for the task -Explain their choice of tools and equipment in relation to the skills and techniques they will be using -Explain their choice of materials and components according to functional properties and aesthetic qualities -Produce appropriate lists of tools, equipment and materials they will need -Formulate step by step plans as a guide to making -Accurately measure, mark out, cut and shape materials and components -accurately assemble, join and combine materials and components -Use techniques that involve a number of steps -Demonstrate resourcefulness when tackling practical problems	
	Evaluating: -Communicate their design ideas -Make simple judgements about their products and ideas against design criteria -Suggest how their products could be improved		Evaluating: -Be able to identify the strengths and areas for development in their ideas and products -Consider the views of others, including intended users, to improve their work -Refer to their design criteria as they design and make -Use their design criteria to evaluate their completed products		Evaluating: -Be able to identify the strengths and areas for development in their ideas and products -Consider the views of others, including intended users, to improve their work -Critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make -Evaluate their ideas and products against their original design specification	

PROPOSITIONAL KNOWLEDGE - What key concepts or knowledge will our designers have? *What knowledge do we want to emphasise? How will knowledge be built on what went before and prepare our children for what is coming next?*						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Structures - Freestanding structures *Know the correct technical vocabulary for the projects that they are undertaking *Know how freestanding structures can be made stronger, stiffer and more stable	Mechanisms – Sliders and levers *Know the correct technical vocabulary for the projects that they are undertaking *Know about the simple working characteristics of materials and components *Know about the movement of simple mechanisms such as levers, sliders, wheels and axles	Mechanical systems – levers and linkages *Know the correct technical vocabulary for the projects that they are undertaking *Know how mechanical systems create movement	Electrical systems – Simple circuits and switches **See link to Y4 Science curriculum - * Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. * Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery. (see more) *Know the correct technical vocabulary for the projects that they are undertaking *Know how simple and more complex electrical circuits and components can be used to create functional products	Structures – Frame structures *Know the correct technical vocabulary for the projects that they are undertaking *Know how to make strong, stiff shell structures *Know how to reinforce and strengthen a 3d framework	Mechanical systems – Pulleys or gears *Know the correct technical vocabulary for the projects that they are undertaking *Know how mechanical systems create movement
	Food – Preparing fruit and veg Food and nutrition: -that all food comes from plants or animals -that food has to be farmed, grown elsewhere or caught -how to name and sort foods into the five groups -everyone should eat at least 5 portions of fruit and veg a day -how to prepare simple dishes safely and hygienically, without using a heat source -how to use techniques such as cutting, peeling and grating -that food ingredients should be combined based on their sensory characteristics	Textiles – Templates and joining techniques *Know the correct technical vocabulary for the projects that they are undertaking *Know that a 3-d textiles product can be assembled from two identical fabric shapes	Food – healthy and varied diet *Know the correct technical vocabulary for the projects that they are undertaking *Know that food ingredients can be fresh, pre-cooked and processed *Know that food is grown, reared and caught -how to cook a variety of mainly savoury dishes safely and hygienically, with the use of a heat source -how to use a range of techniques including: peeling, chopping, slicing, grating, mixing, spreading, kneading, baking -a healthy diet is made up of a variety and balance of different food and drink -to be active and healthy, food and drink are needed to provide energy for the body	Textiles – 2d shape to 3d product *Know the correct technical vocabulary for the projects that they are undertaking *Know that a single fabric shape can be used to make a 3d textiles product	Food – Celebrating culture and seasonality *Know the correct technical vocabulary for the projects that they are undertaking -that food is grown, reared and caught -how to cook a variety of mainly savoury dishes safely and hygienically, with the use of a heat source -how to use a range of techniques including: peeling, chopping, slicing, grating, mixing, spreading, kneading, baking -a healthy diet is made up of a variety and balance of different food and drink -to be active and healthy, food and drink are needed to provide energy for the body *That a recipe can be adapted by adding or substituting one or more ingredients	Textiles – Combining different fabric shapes *Know the correct technical vocabulary for the projects that they are undertaking *Children should know that a 3d textiles product can be made from a combination of fabric shapes

What key vocabulary will our designers need? *Vocabulary is important because it embodies and communicates concepts.*						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Structures - Freestanding structures cut, fold, join, stick 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 design, make, evaluate, user, purpose, ideas, design criteria, product, function	Mechanisms – Sliders and levers slider, lever, pivot, slot, bridge/guide card, masking tape, paper fastener, join pull, push, up, down, straight, curve, forwards, backwards, design, make, evaluate, user, purpose, ideas, design criteria, product, function	Mechanical systems – levers and linkages mechanism, lever, linkage, pivot, slot, bridge, guide system, input, process, output linear, rotary, oscillating, reciprocating, user, purpose, function prototype, design criteria, innovative, appealing, design brief	Electrical systems – Simple circuits and switches Series circuit, fault, connection, toggle switch, push to make switch, push to break switch, battery, battery holder, bulb, bulb holder, wire, insulator, conductor, crocodile switch control, program, system, input device, output device, user, purpose, function, prototype, design criteria, innovative, appealing, design brief	Structures – Frame structures frame structure, stiffen, strengthen, reinforce, triangulation, stability, shape, join, temporary, permanent design brief, design specification, prototype, annotated sketch, purpose, user, innovation, research functional	Mechanical systems – Pulleys or gears pulley, drive belt, gear, rotation, spindle, driver, follower, ratio, transmit, axle, motor circuit, switch, circuit diagram annotated drawings, exploded diagrams mechanical system, electrical system, input, process, output design decisions, functionality, innovation, authentic, user, purpose, design specification, design brief
	Food – Preparing fruit and veg soft, juicy, crunchy, sweet, sticky, smooth, sharp, crisp, sour, hard flesh, skin, seed, pip, core, sliving, peeling, cutting, squeezing, healthy diet, choosing, ingredients, planning, investigating, tasting, arranging, popular, design, evaluate, criteria	Textiles – Templates and joining techniques template, pattern pieces, mark out, join, decorate, finish features, suitable, quality, mock-up, design criteria, make, evaluate, user, purpose, function	Food – healthy and varied diet Food and nutrition: texture, taste, sweet, sour, hot, spicy, appearance, smell, preference, greasy, moist, cook, fresh, savoury hygienic, edible, grown, caught, reared, frozen, tinned, processed, seasonal, harvested, healthy/varied diet, planning, design criteria, purpose, user, annotated sketch, sensory, evaluations peeling, chopping, slicing, grating, mixing, spreading, kneading, baking fresh, pre-cooked, processed	Textiles – 2d shape to 3d product fabric, fastening, compartment, zip, button, structure, finishing technique, strength, weakness, stiffening, template, stitch, seam, seam allowance user, purpose, design, model, evaluate, prototype, annotated sketch, functional, innovative, investigate, label, drawing, aesthetics, function, pattern pieces	Food – Celebrating culture and seasonality fat, sugar, carbohydrates, protein, vitamins, nutrients, nutrition, healthy, varied, gluten, dairy, allergy, intolerance, savoury, source, seasonally utensils, combine, fold, knead, stir, pour, mix, rubbing in, whisk, beat, roll out, shape, sprinkle, crumble design specification, innovative, research, evaluate, design brief	Textiles – Combining different fabric shapes Seam, seam allowance, wadding, reinforce, right side, wrong side, hem, template, pattern pieces pins, needles, thread, pinking shears, fastenings, iron transfer paper design criteria, annotate, design decisions, functionality, innovation, authentic, user, purpose, evaluate, mock-up, prototype

What experiences do we want our designers to have had? What opportunities will our designers have had to ***'make the world a better place'***?						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Each academic year, the children will have the opportunity to solve real and relevant problems by using their skills and knowledge within the field of Design Technology to make the world a better place by designing, making and selling products at the Fishbourne Church and School Fete during the week leading up to the event.						
			Children should learn about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products and in doing so made the world a better place: Y3: Graham Bosher (Graze) Y4: Y5: Y6: Sir Frederick Henry Royce			
	Structures - Freestanding structures Design a new piece of furniture for the Three Bears or a new bridge for the Billy Goats Gruff.	Mechanisms – Sliders and levers Design and make greetings cards to sell at the school and church fete	Mechanical systems – levers and linkages Children design and make a moving story/information book for a younger audience (this could be a whole class book with each page created collaboratively)	Electrical systems – Simple circuits and switches Children design and make games that can be played at the school and church fete	Structures – Frame structures Children to design and make kites *Could link to the Kite Festival,* https://www.portsmouthkitefestival.org.uk/	Mechanical systems – Pulleys or gears Design and make prototype vehicles/go-karts (linked to Greenpower?) *Perhaps see if we can build a link with Rolls Royce?*
	Food – Preparing fruit and veg Setting up a fruit smoothie or fruit stall for the school and church fete	Textiles – Templates and joining techniques Make a hand puppet to tell a story for children at the pre-school.	Food – healthy and varied diet Food and nutrition: Children set up a 'snack-bar' for the school and church fete	Textiles – 2d shape to 3d product Children contribute to a story sack being set up for children in Reception class	Food – Celebrating culture and seasonality Savoury organic, healthy snacks to sell at the church and school fete *Perhaps see if we can build a link with a local bakery?*	Textiles – Combining different fabric shapes Design and make textile items for sale at church and school fete – possibly linked to 'bags for life'