Curriculum and Progression in Design Technology

Intent: *'Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values.* ***Department of Education, National Curriculum.***

At Rothbury First School our aim is to provide a Design and Technology curriculum that enables our learners to adapt to an ever-growing and advancing world. We do not just stop at our curiosity of how things work but instead look at how we can think creatively to problem solve and make products even better. We want to use Design Technology to equip our children with resilience, independence, an understanding of diversity and a sense of community. Setting purposeful tasks linked to a wide range of topics and their current world will enable each child to reach their full potential in DT by encouraging children to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through this exposure, children take on the role of developer, evaluator and that of a critique, exploring how products can be developed or adapted for different users. Through use of a hands-on approach in Design Technology, skills and techniques are developed ensuring children are equipped for the next stages in their lives in an increasingly technological world.

Year A/B	Aut 1	Aut 2	Spr 1	Spr 2	Sum 1	Sum 2
Early years	Using the workshop area safely/Following instructions to make a model	Joining materials	Planning a model Nursery-verbally Reception-Sketching/drawing	Food and cooking	Design, make and evaluate Nursery-verbally Reception-Recorded	Real tools-using them safely (hammers and screwdrivers)

Suggested activities	-Introducing scissors cutting hair templates/range of materials to cut. -Introducing glue/PVA glue. Cut and stick activity-making a bear face or pig face	-Introducing sellotape-elf workshop/Diwali decorations -introducing masking tape-making a parachute (link to Felix jumping from space)/DIWali puppets -introducing split pins-split pin bears or astronaut -introducing paper clips-paper clip colour match	-Designing a dragon machine/robot-links to computing -dinosaur design. -Examples and prompts in writing areas/story corners and construction area.	-Links to texts-Sandwiches /pancakes/ginger bread men -Balanced diet-our favourite foods (link to text do you like?.....) -home corner recipes-balanced diet	-Vehicle project- -Examples of vehicles from key texts in construction area/writing area and workshop. -Range of materials in workshop -design sheets in workshop and construction area.	Screwdrivers/hammers/nuts and bolts/hand drills/hand whisks/peeler/hand juicer/mortar
Year A		Y1/2 Salt Dough picture frames Y 3/4 Levers and mechanism, gears and pulleys		Y1/2 Food and drink Yr3/4 Cooking and nutrition		Y1/2 Wheels and axles Y3/4 Weaving
Year B		Y3/4 Architecture Y1/2 Christmas - Sewing		Y3/4 Circuits and electricity Y1/2 Mothers Day/Easter slider cards	Y3/4 Food and drink	Y1/2 Houses and Homes/Castles Y3/4 Cooking and nutrition

	What will a Rothbury First School designer look like?		
	At the end of Reception they will have the following knowledge:	At the end of Year 2 they will have the following knowledge:	At the end of Year 4 they will have the following knowledge:

Being a designer	‘Design and Technology’ sits predominantly within the Expressive Arts and Design area of learning within the EYFS. In addition, elements of early learning goals including Physical Development, Managing Self and Communication and language are fundamental to the core skills required for Design and Technology. The Characteristics of Effective Learning are threaded through all aspects of learning and are the fundamental ways in which children within EYFS learn. The following aspects of the EYFS Framework are relevant and link to the KS1 coverage and progression of skills. **Listening, Attention** Listen attentively and respond to what they hear with relevant questions, comments and actions when being read to and during whole class discussions and small group interactions - Make comments about what they have heard and ask questions to clarify their understanding - Hold conversation when engaged in back-and-forth exchanges with their teacher and peers **Speaking** - Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary - Offer explanations for why things might happen. **Managing Self** - Be confident to try new activities and show independence, resilience and perseverance in the face of challenge - Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices **Fine Motor Skills** - Hold a pencil effectively in preparation for fluent writing – using the tripod grip in almost all cases; - Use a range of small tools, including scissors, paint brushes and cutlery	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, slid ers, wheels and axles] in their products **Cooking and Nutrition** - use the basic principles of a healthy and varied diet to prepare dishes	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 helped shape the world **Technical knowledge** -apply their understanding of how to strengthen, stiffen and reinforce more complex structures

	- Begin to show accuracy and care when drawing. **Writing** -Write recognisable letters, most of which are correctly formed - Spell words by identifying sounds in them and representing the sounds with a letter or letters - Write simple phrases and sentences that can be read by others **Creating with materials** - 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	- understand where food comes from.	-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 and processed.

Progression of Skills

	EYFS	Year 1	Year 2	Year 3	Year 4
Developing, planning and communicating ideas.	- Participate in discussions, offering their own ideas - Offer explanations for why things might happen. When creating plans, write recognisable letters, most of which are correctly formed - Spell words by identifying sounds in them and representing the sounds with a letter or letters - Write simple phrases and sentences that can be read by others	Draw on their own experience to help generate ideas Suggest ideas and explain what they are going to do Identify a target group for what they intend to design and make Model their ideas in card and paper Develop their design ideas applying findings from their earlier research	Generate ideas by drawing on their own and other people's experiences Develop their design ideas through discussion, observation , drawing and modelling Identify a purpose for what they intend to design and make Identify simple design criteria Make simple drawings	Generate ideas for an item, considering its purpose and the user/s Identify a purpose and establish criteria for a successful product. Plan the order of their work before starting Explore, develop and communicate design proposals by modelling ideas Make drawings with labels when designing	Generate ideas, considering the purposes for which they are designing Make labelled drawings from different views showing specific features Develop a clear idea of what has to be done, planning how to use materials, equipment and processes, and suggesting alternative methods of making, if the first attempts fail Evaluate products and identify criteria that can be used for their own designs
Working with tools, equipment, materials and components to make quality	- Hold a pencil effectively in preparation for fluent writing – using the tripod grip in almost all cases; - Use a range of small tools, including scissors, paint brushes and	Make their design using appropriate techniques With help measure, mark out, cut and shape a range of materials Use tools eg scissors and a	Begin to select tools and materials; use vocab' to name and describe them Measure, cut and score with some accuracy Use hand tools safely and	Select tools and techniques for making their product Measure, mark out, cut, score and assemble components with more accuracy Work safely and accurately	Select appropriate tools and techniques for making their product Measure, mark out, cut and shape a range of materials, using appropriate tools,

products (inc-food)	cutlery - Begin to show accuracy and care when drawing. - Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices - 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	hole punch safely Assemble, join and combine materials and components together using a variety of temporary methods e.g. glues or masking tape Select and use appropriate fruit and vegetables, processes and tools Use basic food handling, hygienic practices and personal hygiene Use simple finishing techniques to improve the appearance of their product	appropriately Assemble, join and combine materials in order to make a product Cut, shape and join fabric to make a simple garment. Use basic sewing techniques Follow safe procedures for food safety and hygiene Choose and use appropriate finishing techniques	with a range of simple tools Think about their ideas as they make progress and be willing change things if this helps them improve their work Measure, tape or pin, cut and join fabric with some accuracy Demonstrate hygienic food preparation and storage Use finishing techniques strengthen and improve the appearance of their product using a range of equipment including ICT	equipment and techniques Join and combine materials and components accurately in temporary and permanent ways Sew using a range of different stitches, weave and knit Measure, tape or pin, cut and join fabric with some accuracy Use simple graphical communication techniques
Evaluating processes and products	- Share their creations, explaining the process they have used - Offer explanations for why things might happen. - Make comments about what they have heard and ask questions to clarify their understanding	Evaluate their product by discussing how well it works in relation to the purpose Evaluate their products as they are developed, identifying strengths and possible changes they might make Evaluate their product by asking questions about what they have made and how they have gone about it	Evaluate against their design criteria Evaluate their products as they are developed, identifying strengths and possible changes they might make Talk about their ideas, saying what they like and dislike about them	Evaluate their product against original design criteria e.g. how well it meets its intended purpose Disassemble and evaluate familiar products	Evaluate their work both during and at the end of the assignment Evaluate their products carrying out appropriate tests

Vocabulary

EYFS	Year 1	Year 2	Year 3	Year 4
Draw, cut, scissors, think, idea, tell me about, pictures, words, choose, wash, clean, tidy, decorate	Design, product, move, explain, make, making, pictures, words, own ideas, product, choose, resources, tools, structure, model, strong/stronger, tools, tidy, arrange, construction,describe, working well, not working well, textile, feel glue, cut, materials, scissors, sliders, safely, wash, clean, surfaces, decorate	Think, idea, plan, choose, best tools, reasons, describe, pictures, diagrams, models, develop, materials, explain, components, different ways, measure, structure, ,movement, textiles, what went well, consider, how, improvements, construction, strong, stable, wheels axles, levers, weigh, ingredients, recipe, hygiene/hygienic, kitchen, join, add, joining, folding, rolling, stronger.	Design, criteria, product, attractive, sequence, order, equipment, tools describe, labelled, sketch, realistic, follow, plan, materials, select, appropriate, techniques, electrical component, mechanical component, accurate, measure, cut, holes, shape, mould, explain, how, improve, know, why, has been successful, not successful, change, strengthen, stiffening, reinforce, structure, join, choose, appearance, qualities, suitability, food, ingredients, weigh, follow recipe,	Influence, designers, produce, plan, explain, persevere, adapt, original, communicate, ideas, sketch, draw, annotate, suggest, improvements, tools, task, knowledge, material, best outcome, attempt, product, strong, measure, accurate, advanced techniques, shape, mould, finishing, evaluate, audience, suggest, improve, purpose, appearance, altered, check, successful, unsuccessful, devise, template, lights, switches, buzzers, electrical mechanisms,

			create, healthy, unhealthy, harvest/ing, safely, grow, plants, herbs, seed, cams, levers, linkages.	circuits, technology, computer design, programme, hygiene, hygienic, safe, creative, present.