Knights Templar Community Church School and Nursery

Work at it with all your heart

Design and Technology

(subject progression)

Intent, Implementation and Impact

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Intent

Design Technology Curriculum Statement

At Knights Templar Community Church School, we aim to ensure that learners become confident and creative planners and designers. We place a large emphasis on creativity and opportunities to explore their own creative visions. Learners are encouraged to experiment with a wide range of different materials to plan and create something new and develop their own skills.

Curriculum Intent

At Knights Templar, we see Design Technology as an inspiring, rigorous and practical subject. Design and Technology encourages children to learn to think and intervene creatively to solve problems both as individuals and as members of a team. We encourage children 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.

Our learners are given opportunities to reflect upon and evaluate past and present design technology, its uses and its effectiveness and are encouraged to become innovators and risk-takers.as a multi-skilled, cross-curricular, interconnected subject, which encourages individual creativity and independence. We want all of our learners to develop a love of art, design and technology and to learn to appreciate individual expressions of creative thinking and activity.

We want them to develop confidence in their own creativity and an enthusiasm when approaching a challenge. We set out to provide an exciting and varied Art and Design curriculum that will inspire and encourage learners' natural curiosity and artistic skills. All learners will achieve their full potential.

Implementation

Through a variety of creative and practical activities, we teach the knowledge, understanding and skills needed to engage in an iterative process of designing and making. The children design and create products that consider function and purpose.

When designing and making, our learners are 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 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, as well as chopping and slicing) accurately.
- select from and use a wider range of materials, ingredients and components, including construction materials, textiles and ingredients, according to their functional properties, aesthetic qualities and, where appropriate, taste.

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.
- understand and use electrical systems in their products.
- apply their understanding of computing to program, monitor and control their products
- Understand some of the ways that food can be processed and the effect of different cooking practices (including baking and grilling).

Key skills and knowledge for D and T have been mapped across the school to ensure progression. The context for the children's work in Design and Technology is also well considered and children learn about real life structures and the purpose of specific examples, as well as developing their skills throughout the programme of study. Design and technology lessons can also be taught as a block so that children's learning is focused throughout each unit of work.

Assessment

The assessment for learning agenda generates the evidence which informs the overall teaching assessments. The knowledge bites within the long-term plans, set out what the children need to be taught and need to remember. Teacher assessments make end of unit judgements through a best-fit model. Where learners are not developmentally at age related expectation, interventions linked to gross motor and fine motor skills will be implemented.

Impact

By the end of their time at Knights Templar, our young Design and Technologists will be:

- **Confident individuals** who develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world
- **Successful learners** who build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users and critique, evaluate and test their ideas and products and the work of others
- **Responsible citizens** who understand and apply the principles of nutrition and learn how to cook; learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens with a critical understanding of its impact on daily life and the wider world.

Statutory Expectations:

Early Years Foundation Stage Framework:			
ELG	Expressive Arts and Design	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. • Make use of props and materials when role playing characters in narratives and stories.
	Physical Development	Fine Motor Skills	• Use a range of small tools, including scissors, paintbrushes and cutlery. • Begin to show accuracy and care when drawing.

National Curriculum Expectations:	
KS1	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

KS2	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 • 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

Knights Templar Community Church School Long Term Overview and Linear Links:

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS Year A/B	***Building for a purpose*** Can I build a waterproof boat?	***Food and Nutrition*** Can I harvest fruits to make a crumble?	***Designing and building*** Can I build a strong bridge?	***Food and Nutrition*** Gingerbread	***Levers, Axels and Wheels*** Can I build a wheelbarrow?	
KS1 Year A	***Building for a purpose*** Can I build a rocket?			***Designing and building*** Can I build a Caribbean pot?		***Levers. Axels and Wheels*** Can I build a boat with a rudder?
KS1 Year B			***Building for a purpose*** Can I make a vehicle?		***Designing and building*** Can I make a self-watering plant pot?	***Healthy eating*** Can we grow and make our own food?
KS2 Year A	***Designing and making*** Design a wearable headdress suitable for royalty		***Designing and making*** Stone age jewellery		***Designing and making*** What story would my tapestry tell? Design our own version of the Bayeux Tapestry	***Designing and making*** Can I design and make clothes using various mediums?
KS2 Year B		**Christmas Stocking** Can I design and sew a Christmas stocking?	***Building for a purpose*** Can I design and make an automatic animal feeder?			**Tudor Food Recipes** Can I research and make typical Tudor recipes?

Knowledge and Skills Progression Maps EYFS/KS1 Year A:

	EYFS	KS1	End of KS1 expectations	KS2	End of lower KS2 expectations
Design	* Knows how to select appropriate resources *Knows how to use gestures, talking and arrangements of materials and components to show design * Knows language of designing and making (join, build, shape, longer, shorter, heavier etc.)	**Year A** * knows what they want to do * knows what a product is for, and how it will work * knows how to use pictures and words to plan, begin to use models * knows how to design a product for themselves following design criteria * knows how to research similar existing products * knows own ideas and how to plan what to do next **Year B** * knows what they want to do and describe how they may do it	*Knows how to design purposeful, functional, appealing products for themselves and other users based on design criteria * Knows how to generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology	**Year A** *knows how to begin to research others' needs * knows how a design meets a range of requirements *knows the purpose of product * knows how to follow a given design criteria *knows at least one idea about how to create product *knows how to create a plan which shows order, equipment and tools *knows how to describe a design using an accurately labelled sketch and words *knows how to make design decisions	*Knows how to 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 *Knows how to generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer aided design

		* knows the purpose of product, how it will work and how it will be suitable for the user * knows how to describe design using pictures, words, models, diagrams, begin to use ICT * knows how to design products for themselves and others following design criteria * knows best tools and materials, and can explain choices * knows how to use knowledge of existing products to produce ideas		*knows how a product will work *knows how to make a prototype *knows how to begin to use computers to show design **Year B** *knows how to use research for design ideas * knows how a design meets a range of requirements and is fit for purpose *knows how to begin to create own design criteria *knows at least one idea about how to create a product and suggest improvements for design. *knows how to produce a plan and explain it to others *knows how realistic plan is	

				*knows how to use an annotated sketch *knows how to make and explain design decisions considering availability of resources * knows and explains how product will work *knows how to make a prototype *knows how to begin to use computers to show design	
Make	*Knows how to construct with a purpose, using a variety of resources *Knows how to simple tools and techniques *Knows how to build/ construct with a wide range of objects *Knows how to select tools & techniques to shape, assemble and join *Knows how to replicate structures with materials / components	**Year A** * Knows what they are making and why *Knows what they need to do next *Knows which tools/ equipment to use to cut, shape, join, finish and explain choices *Knows how to measure, mark out, cut and shape, with support *Knows how to use suitable materials and explain choices	*Knows how to select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] *Knows how to select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics	**Year B** *knows how to select suitable tools/equipment, explain choices; begin to use them accurately * Knows how to select appropriate materials, fit for purpose. * Knows how to work through plan in order * Knows how good a product will be * Knows how to begin to measure, mark out, cut and shape	*Knows how to select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately *Knows how to select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their

	*Knows and can discuss how to make an activity safe and hygienic * Knows how to record experiences by drawing, writing, voice recording * Knows different media can be combined for a purpose	*Knows how to use finishing techniques to make product look good *Knows how to work in a safe and hygienic manner **Year B** *Knows what they are making and why it fits the purpose *Knows how to make suggestions as to what they need to do next. *Knows how to join materials/ components together in different ways *Knows how to measure, mark out, cut and shape materials and components, with support. *Knows which tools they are using and why *Knows suitable materials and can explain choices		materials/components with some accuracy * Knows how to begin to assemble, join and combine materials and components with some accuracy * Knows how to begin to apply a range of finishing techniques with some accuracy **Year B** * Knows suitable tools and equipment, explain choices in relation to required techniques and use accurately *Knows how to select appropriate materials, fit for purpose; explain choices * Knows to work through plan in order * Knows if product is going to be good quality * Knows how to measure, mark out, cut	functional properties and aesthetic qualities

		depending on characteristics. *Knows finishing techniques to make product look good *Knows to work safely and hygienically		and shape materials/components with some accuracy *Knows how to assemble, join and combine materials and components with some accuracy *Knows and uses a range of finishing techniques with some accuracy	
Evaluate	*Knows to adapt work if necessary *Knows how to dismantle, examine, talk about existing objects/structures *Knows and manages some risks *Knows and practises some appropriate safety measures independently *Knows how to talk about how things work *Knows similarities and differences between existing objects / materials / tools	**Year A** *Knows how to talk about their work, linking it to what I was asked to do *Knows about existing products considering: use, materials, how they work, audience, where they might be used *Knows about existing products, and say what is and isn't good * Knows how to talk about things that other people have made	*Knows and evaluates a range of existing products *Knows how to evaluate their ideas and products against design criteria	**Year B** * knows to look at design criteria while designing and making *Knows how to use design criteria to evaluate finished product * Knows what they would change to make design better *Knows how to begin to evaluate existing products, considering: how well they have been made, materials, whether they work, how	*Knows how to investigate and analyse a range of existing products. * Knows how to evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. *Knows how key events and individuals in design and technology have helped shape the world

	*Knows about technological toys *Knows how to describe textures	*Knows what could make product better **Year B** * Knows what went well, thinking about design criteria *Knows about existing products considering: use, materials, how they work, audience, where they might be used; express personal opinion *knows how to evaluate how good existing products are *Knows about what they would do differently if they were to do it again and why		they have been made, fit for purpose * Knows by whom, when and where products were designed * Knows some inventors/designers/ engineers/chefs/ manufacturers of ground-breaking products **Year B** *Knows to design criteria while designing and making *Knows to use criteria to evaluate product * Knows how to begin to explain how they could improve original design *Knows how to evaluate existing products, considering: how well they've been made, materials, whether they work, how they have	

				been made, fit for purpose * Knows by whom, when and where products were designed * Knows how to research whether products can be recycled or reused * Knows about some inventors/designers/ engineers/chefs/manufacturers of ground-breaking products	

Design and Technology Vocabulary Progression

EYFS	KS1 Year A	KS1 Year B
planning, investigating, design, evaluate, make, ideas, fruit and vegetable names, names of equipment and utensils sensory vocabulary e.g. soft, juicy, crunchy, sweet, sticky, smooth, sharp, crisp, sour, hard flesh, skin, seed, pip, core join, pull, push, up, down, forwards, backwards, card, masking tape,	make, user, purpose, product slicing, peeling, cutting, squeezing, healthy diet, choosing, ingredients joining and finishing techniques, tools, fabrics and components, template, pattern, pieces, mark out, join, decorate, finish, cut, fold, metal, wood, plastic, circle, triangle, square, rectangle slider, lever, pivot, slot, bridge/guide, paper fastener, straight, curve,	design criteria, function, label, drawing fix structure, wall, tower, framework, weak, strong, base, top, underneath, side, edge, point, surface, thinner, thicker, corner, cuboid, cube, cylinder vehicle, wheel, axle, axle holder, chassis, body, assembling, cutting, joining, shaping, finishing, fixed, free, moving, mechanism names of tools, equipment and materials used

KS1 Year A	KS1 Year B
model, prototype, annotated sketch, functional, innovative, investigate, function, planning, annotated sketch, appealing name of products, names of equipment, utensils, techniques and ingredients texture, taste, sweet, sour, hot, spicy, appearance, smell, preference, greasy, moist, cook, fresh, savoury mechanism, linkage, slot, input, process, output linear, rotary, oscillating, reciprocating fabric, names of fabrics, fastening, compartment, zip, button, structure, finishing technique, strength, weakness, stiffening, templates, stitch, seam, seam allowance	design brief, design criteria, sensory evaluations hygienic, edible, grown, reared, caught, frozen, tinned, processed, seasonal, harvested healthy/varied diet three-dimensional (3-D) shape, net, cube, cuboid, prism, vertex, edge, face, length, width, breadth, capacity, marking out, scoring, shaping, tabs, adhesives, joining, assemble, accuracy, material, stiff, strong, reduce, reuse, recycle, corrugating, ribbing, laminating, font, lettering, text, graphics, decision,

Design and Technology Non-Negotiables

Planning:	Resources:	Presentation:	Assessment:	Inclusion for All:
• School format for planning will be used and will identify: Learning Objective, Skills Progression, Teacher input, Practise It and Review It sections • Planning will be shared on p/drive with Key Stage Team and the strengths of the team will be focused on in the planning stages • Resources will be identified on the planning • Links to other curriculum areas will be made where appropriate	• DT overview • Knowledge organisers • End of unit retrieval quizzes • Resources for Learning books	• Dates underlined • LO- as a question linked to knowledge • Begin writing by margin • Draw diagrams/ pictures on plain paper • Stick worksheets in straight with glue • Floor books can be used to record class learning – this should be encouraged.	• Prior learning revisit • Elicitation- as a Designer I would like to know/I would like to ask • Now I know… • Oral quizzes to recap learning • Lesson plenary- what have we learnt today? What do we now know? • End of unit retrieval quizzes	• Pre-teaching of key vocabulary • Teacher modelling and scaffolding of language • Use of practical resources • Use of alternative methods of recording • Use of scribes/partnered work