**Design & Technology: Progression Mapped by Strand** 

**Intention**

As a church school we acknowledge that all of our pupils are significant to God. We therefore value each child’s unique personality and aim to develop their character, talents and abilities to the fullest in His name. Our design & technology curriculum is an intrinsic part of this, unlocking the potential of each child, so that they can flourish. This is also in keeping with our status as a UNICEF Rights Respecting School and fulfils our obligations under Article 29 of the United Nations Convention on the Rights of the Child.

**Design & Technology**

Design & technology makes a huge contribution to the British economy and offers a wealth of employment possibilities. We believe that it is our duty to ensure children have the skills to access these opportunities later in life. Design & technology combines learning from maths, computing and science with aspects of art & design. Children learn a raft of practical skills, such as cooking and sewing, and technical skills, such as making a working pulley-drive. There are also transferable skills that come from learning about design & technology, such as resilience, creative problem-solving and team-working. We feel these skills are essential to our children’s overall development and future economic success in the 21st century.

**Implementation**

Each year group studies one design & technology unit per term. We believe that individual class teachers are best placed to decide when they teach the units during the term, particularly as many are linked to learning in other curriculum areas. Due to the limited size of the classrooms, most units will need to be taught over a block of days, rather than weekly. This is particularly the case with units that result in 3-dimensional outcomes. We trust teachers to make sensible decisions regarding how they structure the delivery of each unit. However, timescales and tips on classroom organisation are included in the plans written by the design and technology leader.

The units in our curriculum have been taken from a number of sources. We still use some QCA units that remain popular with children and staff alike. We have added some units from Rising Stars and have written others ourselves. One Year 5 unit was developed with the help of 3 of our SEND pupils, (a project for the Cultural Leadership Community run by A New Direction). We continue to work in partnership with The City Learning Centre who run computing workshops for classes that support that aspect of design & technology.

Each year some classes are taught design & technology by the subject leader, who is a Central St Martins School of Art graduate. The design & technology leader will also team teach units if class teachers request support, to ensure that quality teaching is modelled throughout the school. This year the design & Technology Leader is carrying out termly informal observations which will provide coaching opportunities and improve the quality of teaching and learning. We have also devoted an INSET day to teacher training on the various mechanisms in the curriculum. Teachers have had to build the mechanical products themselves, empowering them to deliver the units to their classes.

**Impact**

We are currently using the Artsmark Self-Assessment Framework to measure the quality of our provision and the impact that it has on our stakeholders. The Artsmark Self-Assessment Framework sets out the Arts Council England’s Quality Principles, which aim to raise the standard of art & design work being produced by, with and for children. However, the quality principles and self-assessment framework do lend themselves to Design & Technology.

The seven Quality Principles are:

* Striving for excellence and innovation
* Being authentic
* Being exciting, inspiring and engaging
* Ensuring a positive and inclusive experience
* Actively involving children and young people
* Enabling personal progression
* Developing belonging and ownership

We aim to reflect these principles in our provision.

The arts leader regularly meets with groups of children to ascertain their views on arts and cultural provision and we have recently set up an HT Arts Council to ensure that children are aware of their right to design & technology education and can advocate for it.

Similarly, the subject leader leads regular CPD sessions to develop staff confidence in teaching design & technology. This is essential as we begin to develop our curriculum and introduce new technologies. We measure the impact of CPD through questionnaires and, more importantly, by the level of teacher engagement with the subject. Termly observations and coaching give design & technology status on the curriculum and also allows us to measure how successful we are.

Children’s attainment after each unit is measured against the targets set out below for each unit. At the end of each academic year teachers make professional judgement as to whether the children have met the expected standard as set out below.

**Strength for today. Bright hope for tomorrow**

**Progression by Strand**

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| **Strand** | **Year 1** | **Year 2** | **Year 3** | **Year 4** | **Year 5** | **Year 6** |
| **Evaluating existing products** | Can I select appropriate words from a range to describe an existing product?Can I say who an existing product was made for and explain how I know in simple terms?Can I explain how an existing product works in simple terms?Can I say what I like and dislike about an existing product?Can I understand a simple given design criteria that is based on existing products? | Can I describe an existing product?Can I identify some of the materials used?Can I say who an existing product was made for and explain how I know? Can I say where the product might be used?Can I begin to link what I like and dislike about an existing product to its function as well as its appearance?Can I make some suggestions about what should be included in the design criteria for a product? | Can I say which existing product has been **designed** better and start to give some reasons why?Can I say which existing product has been **made** better and start to give some reasons why?Can I identify some of the materials used and say why they have been chosen?Can I identify some basic construction methods used in existing products? Can I say how the product would play a part in people’s lives? E.g. remind them of their holiday in Egypt…help them learn about… Can I refer back to my design criteria and make changes when directed? | Can I say which existing product has been **designed** better and give some reasons why?Can I say which existing product has been **made** better and give some reasons why?Can I identify the materials used and say why some of them have been chosen?Can I identify some of the construction methods used in existing products? Can I say how the product/technology has impacted/impacts on daily life? *E.g. how would life be different if there was no electric lighting?*Can I refer to my design criteria as I work? | Can I say which existing product has been **designed** better and give relevant reasons?Can I say which existing product has been **made** better and give relevant reasons?Can I identify the materials used and say why they have been chosen?Can I identify the construction methods used in existing products? Can I say how the product/technology has impacted/impacts on daily life and the environment?Can I say who designed some products and why?Can I say who they think made designer goods and where?Can I refer to my design criteria as I manufacture, making adjustments to my work where necessary?  | Can I say which existing product has been **designed** better and give relevant reasons?Can I say which existing product has been **made** better and give relevant reasons?Can I identify the materials used and say why they have been chosen?Can I identify the construction methods used in existing products? Can I say how the product/technology has impacted/impacts on daily life and the environment?Can I say who designed some products and why?Can I say who they think made designer goods and where?Can I refer to my design criteria as I manufacture, making adjustments to my work where necessary?  |

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| **Strand** | **Year 1** | **Year 2** | **Year 3** | **Year 4** | **Year 5** | **Year 6** |
| **Designing** | Can I use existing products as a starting point for my own ideas?Can I design purposeful and functional product for me or my classmates? Can I begin to relate my ideas to the given design criteria?Can I draw simple pictures that show what I want my product to look like? Can I say how I will make my product after an adult has modelled the making process step-by-step? | Can I explore a range of existing products and select ideas to include in my own design?Can I design purposeful and functional products for familiar characters/ people?Can I relate my design to a design criteria I have helped to develop?Can I draw and label pictures that show what I want my product to look like?Can I write a simple plan after the adult has modelled the making process step-by-step? | Can I begin to gather information about the needs and wants of particular individual and groups? Can I begin to design realistic products focussed on the needs of the user?Can I begin design products that work in a wider range of less familiar contexts?Can I identify at least 2 aspects of the design criteria independently?Can I draw and label diagrams that show what my product looks like from the front and back?Can I annotate my diagrams to show which components I will use and how my product will work? Can I begin to select materials and components from a wider range and explain my choices? Can I begin select appropriate tools from a wider range and use them safely with minimal supervision?Can I begin make a list of materials and components that I will need?Can I begin to order the main stages of making in a plan?**NB: In year 3 children will require more scaffolding and guidance than is anticipated in year 4.** | Can I gather information about the needs and wants of particular individuals and groups?Can I design realistic products focussed on the needs of the user?Can I design products that work in a wider range of less familiar contexts?Can I identify some aspects of the design criteria independently?Can I draw and label diagrams that show what my product looks like from different angles?Can I annotate my diagrams to show which components I will use and how my product will work?Can I select materials and components from a wider range and explain my choices? Can I select appropriate tools from a wider range and use them safely with minimal supervision?Can I make a list of materials and components that I will need?Can I order the main stages of making in a plan? | Can I carry out research using simple surveys?Can I begin to use research data to identify the needs, wants, preferences and values of particular individuals and groups?Can I begin to design innovative products drawing on research?Can I begin to make design decisions taking time and resources into account?Can I begin identify a sensible design criteria independently?Can I clarify my ideas through discussion and different types of diagrams?Can I begin to produce an appropriate list of tools, equipment and materials?Can I begin formulate a step-by-step plan as a guide to making? Can I begin to model my ideas using prototypes and pattern pieces?**NB: In year 5 children will require more scaffolding and guidance than is anticipated in year 6.** | Can I carry out research using surveys, interviews, questionnaires and web-based resources?Can I use research data to identify the needs, wants, preferences and values of particular individuals and groups?Can I design innovative products drawing on research?Can I make design decisions taking time, resources and costs into account?Can I identify a sensible design criteria independently?Can I clarify my ideas through discussion, different types of diagrams and CAD?*Computing curriculum – Y6 Creating Media: 3d Modelling*Can I produce an appropriate list of tools, equipment and materials?Can I formulate a step-by-step plan as a guide to making? Can I model my ideas using prototypes and pattern pieces?  |
| **Strand** | **Year 1** | **Year 2** | **Year 3** | **Year 4** | **Year 5** | **Year 6** |
| **Making** | Can I use given materials appropriately?Can I use given tools safely after adult modelling and sometimes with support?Can I use the cutting, measuring, constructing and finishing techniques modelled by an adult when making with support? Can I finish my products neatly? Can I begin to understand that designers often work as part of a team? | Can I chose appropriate materials for the task from a limited range?Can I use given tools safely (after an adult has modelled) with increasing independence?Can I use the cutting, measuring, constructing and finishing techniques modelled by an adult when making with increasing independence? Can I chose from a limited range of finishing touches e.g. paint finishes, diamantes, stickers?Can I begin to understand that different members of a design team may do different jobs?  | Can I follow procedures of safety and hygiene when modelled?Can I begin to measure, mark out, cut and shape materials and components with some accuracy? Can I begin to assemble join and combine materials and components with some accuracy?Can I begin to apply a range of range of finishing techniques, including those from art & design, with some accuracy?**NB: In year 3 children will require more scaffolding and modelling than is anticipated in year 4.** | Can I follow procedures of safety and hygiene?Can I measure, mark out, cut and shape materials and components with some accuracy? Can I assemble join and combine materials and components with some accuracy?Can I apply a range of range of finishing techniques, including those from art & design, with some accuracy? | Can I being to follow procedures of safety and hygiene independently making judgements as to when help is needed?Can I begin to accurately measure, mark out, cut and shape materials and components?Can I begin to accurately assemble, join and combine materials and components?Can I begin to finish products in a variety of ways to a high standard?Can I begin to demonstrate resourcefulness when tackling problems?**NB: In year 5 children will require more scaffolding and guidance than is anticipated in year 6.** | Can I follow procedures of safety and hygiene independently making judgements as to when help is needed?Can I accurately measure, mark out, cut and shape materials and components?Can I accurately assemble, join and combine materials and components?Can I finish products in a variety of ways to a high standard?Can I demonstrate resourcefulness when tackling problems? |

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| **Strand** | **Year 1** | **Year 2** | **Year 3** | **Year 4** | **Year 5** | **Year 6** |
| **Evaluating their own products** | Can I say what I like abd dislike about my product?Can I show/say how my product works in simple terms? *e.g. “this bit turns and makes that bit go round”*Can I relate at least 1 aspect of my design to the given design criteria?  | Can I say how my own product is similar and different to existing products?Can I say how my product pleasing to me?Can I say how the product will work the product will work using some technical vocabulary? e.g. “The wheels are joined by an axle.” Can I relate some aspects of my design to the given design criteria? Can I identify simple improvements that could be made? | Can I begin to use my design criteria to evaluate my finished product?Can I begin to use the design criteria to identify strengths and weaknesses in my finished product? Can I begin to say how my product would please the intended user?**NB: In year 3 children will require more scaffolding and guidance than is anticipated in year 4.** | Can I use my design criteria to evaluate my finished product?Can I use the design criteria to identify strengths and weaknesses in my finished product? Can I say how my product would please the intended user?  | Can I begin to use the design criteria to identify strengths and weaknesses in my finished product? Can I begin to say how my product would please the intended user?Can I begin to critically evaluate the quality of the design, manufacture and fitness of purpose of my product, as I design and make it?Can I begin to say how close my final product is to my original design and why it might be different?**NB: In year 5 children will require more scaffolding and guidance than is anticipated in year 6.** | Can I use the design criteria to identify strengths and weaknesses in my finished product? Can I say how my product would please the intended user?Can I critically evaluate the quality of the design, manufacture and fitness of purpose of my product, as I design and make it?Can I say how close my final product is to my original design and why it might be different?  |

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| **Strand** | **Year 1** | **Year 2** | **Year 3** | **Year 4** | **Year 5** | **Year 6** |
| **Technical Knowledge** | Explore and use mechanisms - sliders, levers and gears - *Moving Pictures & Introduction to Gears*Build structures, exploring how they can be made stronger, stiffer and more stable – *See Y1 Art & Design Unit ‘Inspired by Miro*Know that food ingredients should be combined according to their sensory characteristics*(We are drinks designers)* | Explore and use mechanisms - wheels & axles, simple pulleys*(Winding up & Vehicles)* Build structures, exploring how they can be made stronger, stiffer and more stable *(Winding Up)*Know that a 3d textiles product can be assembled from two identical fabric shapes*(We are bag designers)* | Apply their understanding of how to strengthen, stiffen and reinforce more complex structures (Photograph frames & We are exhibition designers)Understand and use mechanical systems in their products* Know how pneumatic systems create movement

(Moving monsters) | Apply their understanding of how to strengthen, stiffen and reinforce more complex structures (Moving toys, We are lighting designers & Applique Cushions)Understand and use mechanical systems in their products* Know how mechanical systems including cams create movement
* Know how simple electrical circuits and components can be used to create functional products

(Moving toys & We are lighting designers) | Apply their understanding of how to strengthen, stiffen and reinforce more complex structures (Thrones for the Gods, Racing cars & Fairground gears)Understand and use mechanical systems in their products* Know how mechanical systems including pulleys or gears create movement

(Racing cars & Fairground gears)* Know how more complex electrical circuits and components can be used to create functional products

(Racing cars & Fairground gears)Apply their understanding of computing to program, monitor and control their products *Computing curriculum – Y5 programming A: Selection in Physical Computing**(CLC)*Know how to create strong, stiff, shell structures(Racing cars) | Apply their understanding of how to strengthen, stiffen and reinforce more complex structures (We are plant protection designers)Understand and use mechanical systems in their products* Know how mechanical systems including pulleys or gears create movement
* Know how more complex electrical circuits and components can be used to create functional products

 (We are plant protection designers)Apply their understanding of computing to program, monitor and control their products (CLC)*Computing curriculum – Y6 programming B: Sensing**(CLC)* |

**Progression by Strand: Cooking & Nutrition**

**Where food comes from & Food preparation, cooking & nutrition**

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| **Year** | **Attainment targets** | **Outcomes** |
| 1 | Pupils should: * Know the names of a variety of fruit and vegetables
* Be able to sort fruit from vegetables
* Know that fruit and vegetables have to be farmed or can be grown in allotments, gardens and even pots
* Know that fruit and vegetables make up the largest section on The Eatwell Plate
* That everyone should eat at least 5 portions of fruit and vegetables per day

<https://www.nhs.uk/change4life/food-facts/five-a-day>* Know how to prepare simple dishes safely and hygienically, without using a heat source. ***Year 1 make fruit/veg smoothie drinks. See ‘We are drinks designers’ DT unit.***

<https://www.bbcgoodfood.com/recipes/fruit-salad><https://www.bbcgoodfood.com/howto/guide/top-5-mocktail-recipes-kids><https://www.nhs.uk/change4life/recipes/blueberry-and-banana-smoothie><https://www.nhs.uk/change4life/recipes/raspberry-orange-and-apple-refresher>* Know how to peel and cut and grate a variety of fruit and vegetables for class snacks and fruit/veg smoothies
 | Children can name a variety of fruit & veg. Can they name a fruit or vegetable for each letter of the alphabet?Children can physically sort fruit and vegetable – understand what the difference is.Children understand that fruit and vegetables come from plants and grow either above or below ground, usually on farms.Children understand that ‘5 a day’ refers to fruit and vegetable portions. Children make fruit smoothies for Sports Day or HUFF Day Celebration – DT unitChildren experience of peeling, cutting and possibly grating real fruit & vegetables. They also use blenders. |
| 2 | Pupils should: * Know that all food comes from plants or animals
* Be able to name common foods that come from animals e.g. milk, cheese, burgers, fish fingers
* Be able to sort foods that have come from plants from those that have come from animals
* Know that food from animals have to be farmed or caught
* How to name and sort foods into the five 5 groups in The Eatwell Plate

<https://www.nhs.uk/change4life/food-facts/five-a-day><https://www.nhs.uk/live-well/eat-well/the-eatwell-guide/?tabname=recipes-and-tips>* Know that everyone should eat at least 5 portions of fruit and vegetables per day
* Know how to prepare simple dishes safely and hygienically, without using a heat source **e.g. hummus with grated lemon zest, chopped garlic & herbs accompanied by grated carrot and pitta**

<https://www.bbcgoodfood.com/recipes/lemon-coriander-hummus><https://www.bbcgoodfood.com/howto/guide/best-healthy-hummus-recipes>* Know how to use techniques such as cutting, peeling and **grating** to create simple class snacks e.g. hummus (above) with pitta bread, vegetable sticks and grated carrot.
 | Children can identify common food products from animals.Children can physically sort common food items that come from plants and from animals into two groups.Name some animals that are commonly reared on farms in the UK.Identify how they might meet their 5 a day – link back to Year 1.Children make hummus recipes and sides.Children experience of peeling, cutting and grating. They also use blenders. |
| 3 | Pupils should:Be able to name some fruit & vegetables that are commonly grown in the UK and some that are more commonly grown abroad.Know the journey made by fruit and vegetables from field to fork – case study strawberries.Understand how to cook a variety of predominantly savoury dishes safely & hygienically including, where appropriate using a heat sourceUnderstand how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, **folding pastry** and baking **– samosas/bourek**<https://www.bbcgoodfood.com/recipes/spinach-samosas-indian-salad><https://www.bbcgoodfood.com/recipes/filo-triangles-artichoke-feta-and-mint><https://www.bbcgoodfood.com/recipe/vegetable-samosas><https://www.bbcgoodfood.com/recipes/spinach-sweet-potato-samosas><https://www.bbcgoodfood.com/recipes/potato-and-pea-samosas><https://www.bbcgoodfood.com/recipes/feta-sweetcorn-samosas>Understand the relative proportions of foods from each group required in a healthy & balanced diet, according to The Eatwell Plate. <https://www.nhs.uk/live-well/eat-well/the-eatwell-guide/?tabname=recipes-and-tips><https://www.bbc.co.uk/bitesize/clips/zdbpyrd>Know that food and drink provide energy for the body<https://www.bbc.co.uk/bitesize/clips/zvp76sg> | Name fruit & vegetables are commonly grown in UK and some that are gown abroad Describe the journey made by fruit and vegetables from field to fork – case study strawberries.Label the different sections of a blank The Eatwell Plate based on the size of each section.Make a variety of samosa/bourek style snacks.Children are proficient at peeling, cutting and grating.Children learn how to cut, fold and seal filo pastry. Describe in basic terms why humans need to eat food. |
| 4 | Pupils should:Understand that diets differ around the worldUnderstand that diets are influenced by the types of crops, animals reared and caught locallyUnderstand how to cook a variety of predominantly savoury dishes safely & hygienically including, where appropriate using a heat sourceUnderstand how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, **forming patties** and baking/**griddling** *–* ***healthy burgers & sweet potato fries***<https://www.bbcgoodfood.com/recipes/falafel-burgers-0><https://www.bbcgoodfood.com/recipes/tuna-sweetcorn-burgers><https://www.nhs.uk/change4life/recipes/chilli-beef-and-bean-burgers-recipe><https://www.nhs.uk/change4life/recipes/turkey-burgers-in-buns>Understand that a healthy diet is made up from variety and a balance of different food and drink, as depicted in ‘The Eat Well Plate’Understand what is meant by staying healthy and that exercise is part of this.  Know how much activity they should try to complete each day.Identify some of the ways that they can be active. Know that healthy food & drink choices provide the best type of energy for active bodiesIdentify some simple swaps they can make to their diet healthier using The Eatwell Plate for guidance<https://www.bbc.co.uk/bitesize/clips/zcvtsbk><https://www.nhs.uk/change4life/food-facts/sugar/sugar-swaps-for-kids> | Children can name some common dishes from other parts of the world. They can identify the ingredients and which food groups they come from.Children can say why diets across the world differ e.g. availability of ingredients locally due to climate or geography.Children make healthy burgers.Children consolidate techniques taught previously and learn how to form patties and bake or griddle burgers**.**Children can identify food healthier choices and plan a healthy balanced meal.Children understand that exercise of part of a healthy lifestyle.  |
| 5 | Know that food is grown, reared and caught across wider worldUnderstand that seasons may affect the food availableUnderstand how food is processed into ingredients that can be eaten or used in cooking – **milk & cheese**<https://www.youtube.com/watch?v=y9wLhRrj5Ug> video of cheese making process<https://www.youtube.com/watch?v=0XSoTEcD_vQ> video of milk making processKnow how to prepare and cook a variety of predominantly savoury dishes safely & hygienically including, where appropriate using a heat sourceUnderstand how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, rolling and baking – **e.g. vegetable tarts that reflect a given season**<https://www.bbcgoodfood.com/recipes/griddled-vegetable-feta-tart><https://www.bbcgoodfood.com/recipes/summer-vegetable-pesto-rose-tart><https://www.bbcgoodfood.com/recipes/tomato-tarts><https://www.bbcgoodfood.com/recipes/asparagus-cheese-tart><https://www.bbcgoodfood.com/recipes/onion-goats-cheese-tarts-0>Know that nutrients are chemicals found in food that perform a particular function in the body.Know that a food group is a way of labelling types of food according to their main nutrients.Know that is important to eat foods from each food group so that the body gets all the nutrients it needs to remain healthy.Know that the major nutrients are proteins, carbohydrates and fats, as well as vitamins and minerals.<https://www.nhs.uk/change4life/food-facts><https://www.bbc.co.uk/bitesize/articles/z7yb42p> | Children can identify some food products that are grown in other parts of the world.They understand that, particularly in the past, some food items were not available in the UK if they were not grown locally. Children understand that food is often imported so that it can be available in the UK all year.Children make seasonal vegetable tarts choosing some of their ingredients to reflect a given season. Children consolidate techniques taught previously and learn how to make and roll pastry.Children have a basic understanding of what nutrients are and how that links to The Eatwell Plate.Children can describe the process milk and cheese go through before they are edible. |
| 6 | Know that food bought in the UK doesn’t hasn’t necessarily been grown, reared or caught in the UKIdentify common supermarket items that have been imported, but could have been grown in the UK e.g. applesIntroduce the concept of ‘food miles’ and calculate those of some common supermarket itemsDiscuss the pros and cons of importing food – link to seasonality & food milesUnderstand how food is processed into ingredients that can be eaten or used in cooking – wheat into flour<https://www.bbc.co.uk/bitesize/clips/zb2kjxs> (bread making process)Know how to prepare and cook a variety of predominantly savoury dishes safely & hygienically including, where appropriate using a heat sourceKnow how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking – **See We are Pop-up Café Designers Unit: Bread products**Know that recipes can be adapted to change the appearance, taste, texture and aromaKnow the government’s top tips for healthy meals/diet* Base meals on starchy foods (2nd food group)
* Eat lots of fruit and veg
* Eat more fish
* Cut down on saturated fat and sugar
* Eat less salt
* Get active and try to be a healthy weight
* Drink lots of water
* Don’t skip breakfast

<https://www.nhs.uk/change4life/food-facts><https://www.bbc.co.uk/bitesize/articles/z7yb42p> | Children can identify common food items that have been imported.Know what is meant by food miles and that they have implications for the environment.Children can describe the process wheat goes through in order to be made into flour and then bread products.Children make bread recipes adding their own choice of ingredients to a basic recipe. Children consolidate techniques taught previously and learn how to use yeast, knead prove and manipulate bread dough e.g. plait it.Children can recall the UK Government’s top tips for healthy meals/diet. |