Fairfield Infant and Nursery School

Design and Technology

Knowledge and Skills Progression	Nursery 2 years 3-4 years	Reception	Year 1	Year 2	Year 3
			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].		[for example, the home, school, leisure, culture, enterprise, industry and the wider environment].
Exploring and developing ideas	*P, S and E Development* Select and use activities and resources, with help when needed. This helps them to achieve a goal they have chosen or one which is suggested to them. Physical Use large-muscle movements to wave flags and streamers, paint and make marks. Choose the right resources to carry out their own plans. Use one-handed tools and equipment, for example, making snips in paper with scissors. Understanding the World Explore how things work.	**Physical** Progress towards a more fluent style of moving, with developing control and grace. Develop their small motor skills so that they can use a range of tools competently, safely and confidently. Use their core muscle strength to achieve a good posture when sitting at a table or sitting on the floor. **Expressive Art and design** Explore, use and refine a variety of artistic effects to express their feelings. Return to and build on their previous learning, refining ideas and developing their ability to represent them.	**Subject content** **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**		**Subject Content** **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, crosssectional 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*

	<u>Expressive Arts and Design</u> Make imaginative and complex 'small worlds' with blocks and construction kits such as a city with different buildings and a park. Explore different materials freely, in order 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. Create closed shapes with continuous lines, and begin to use these shapes to represent objects.	Create collaboratively, sharing ideas, resources and skills.	• *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*	*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.*
	ELG **<u>Expressive Arts and design</u>** • 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. ELG **<u>Physical Development (Fine Motor)</u>**		**Cooking and Nutrition** *As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life.*	**Cooking and Nutrition** *-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,*

	• Use a range of small tools, including scissors, paintbrushes and cutlery.		• *use the basic principles of healthy and varied diet to prepare dishes* • *understand where food comes from.*		*reared, caught and processed. National curriculum (KS2)*
LONG TERM PLAN	***My world** *** Let's Celebrate** ***Favourite Stories** *** Explorers** ***Colours** *** Through the Window**	***My World** ***Let's Celebrate** ***Fairytales** ***Explorers** ***Farms/Animals** *** Through the Window**	***Alive and Kicking** ***Let's Celebrate** ***I spy from the London Eye** ***Explorers** ***Once Upon a Time** ***Through the Key Hole**	*** Africa** **Let's Celebrate** ***Castles Knights and dragons** ***Explorers** ***Open the Book (Katie)** ***Through the Key Hole**	
Design	Choose the right resources to carry out their own plan. For example, choosing a spade to enlarge a small hole they dug with a trowel. Correct paintbrush to fill an area. Collaborate with others to manage large items, such as moving a long plank safely, carrying large hollow blocks. Develop their own ideas and then decide which materials to use to express them.		*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* *• Can they think of some ideas of their own?* *• Can they explain what they want to do?* *• Can they use pictures and words to plan?*	*Design purposeful, functional, appealing products for themselves and other users based on design criteria* **Design a boat to float** *Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology* **Gargoyles** *-Think of ideas and plan what to do next?* *-Choose the best tools and materials* *-Give a reason why these are best -* *Describe their design by using pictures, diagrams, models and words?* **Design a boat to float**	*Can they show that their design meets a range of requirements? Can they put together a stepby-step plan which shows the order and also what equipment and tools they need? Can they describe their design using an accurately labelled sketch and words? How realistic is their plan? Generate, develop, model and communicate their ideas through discussion and annotated sketches.*
Make	**Join different materials and explore different textures.** **Use one-handed tools and equipment, for**	Create collaboratively sharing ideas, resources and skills – group projects.	*Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]* **Split pin animals**	*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*	*Can they use equipment and tools accurately?*

	example, making snips in paper with scissors. **Explore different materials freely, in order to develop their ideas about how to use them and what to make.**	**Safely use and explore a variety of materials, tools and techniques, e.g. Hole punch, stapler, scissors tape, glue. (Continuous provision)** *Experiment with colour, design, texture, form and function* **Develop fine motor skills so that they can use a range of tools competently, safely and confidently.** **E.g. pencils, paintbrushes, scissors, knives, forks and spoons.** **(Squiggle Wiggle and dough disco.)**	*Select from and use a wide range of materials and components, including construction materials,* *Textiles* **Glue book marks/ finger puppet** *and ingredients, according to their characteristics* ***Iced biscuits CIN*** *• Can they explain what they are making?* *Which tools are they using?* **Name basic tools**	*materials and components, including construction materials,* *textiles -* **Binca** *and ingredients, according to their characteristics* *Join things (materials/ components) together in different ways* **Joining Materials** *Explore ways to join* *Card* *Clay - slick* *Textiles- sew button e.g. poppy middle* *Food – icing biscuits CIN*	
Evaluate	**Share their experiences and creations with others.** **Can it be changed to make it better?** **What would you do next time if asked to make the same thing again?** **And why?** **E.g.Change the size, colour, more or less**	Share their creations, explaining the process they have used	*Explore and evaluate a range of existing products Evaluate their ideas and products against design criteria* *Can they describe how something works?* *Evaluate own work.* *Sandwich, bread* *Evaluate each other's, work. 3D models* **Evaluate existing products.** **Types of bread,**	*Explore and evaluate a range of existing products Evaluate their ideas and products against design criteria What went well with their work? If they did it again, what would they want to improve?* **Evaluate own work.** **Diva lamps** **Evaluate each other's, work.** **3D models** **Evaluate existing products.** **Boats**	*What did they change which made their design even better? Investigate and analyse a range of existing products.*

	• A Day to invent all children to design something to make life easier. Explain how it works.				
Technical knowledge	*Collaborate with others to manage large items, such as moving a long plank safely. * Carrying large hollow blocks. * Combine shapes to make new ones - an arch, a bigger triangle etc.	**Farm Vehicles**	*Build structures, exploring how they can be made stronger, stiffer and more stable* London buildings/ Bridges *• Can they describe how different textiles feel?* *Science link* *• Can they make a product from textile by gluing?* Finger puppet, bookmark *Construction* *• Can they talk with others about how they want to construct their product?* *• Can they select appropriate resources and tools for their building projects?* ** Can they make simple plans before making objects, e.g. drawings, arranging pieces of construction before building.*	*Explore and use mechanisms [for example, levers, sliders,* Christmas card, diorama *wheels and axles], in their products.* Vehicle *Mechanisms Can they join materials together as part of a moving product?* *Can they add some kind of design to their product?* *Use of materials, colour, paint pattern* *• Can they join material in different ways?* E.g. Staple, glue, paperclip, sew, treasury tag or split pin. *• Can they use joining, folding or rolling to make materials stronger?* Junk modelling	*Can they choose the appropriate material to meet the needs of the product? Can they choose textiles both for their appearance and also qualities? Do they select the most appropriate tools and techniques to use for a given task?*
Cooking and Nutrition	Use a knife to cut and spread and a fork to spear fruit. **Use cutlery in continuous provision when cutting**	*Manage their own basic hygiene and personal needs, including dressing, going to the toilet* **and understanding the importance of healthy food choices.** *Know and talk about the different factors that support their overall health and wellbeing: - regular physical activity –*	*Understand where food comes from.* Sorting activity • above ground - trees, bush, plant • Underground • From animals *Cooking and nutrition* *• Can they cut food safely?* *• Can they describe the texture of foods?* Fruit tasting – senses	*Use the basic principles of a healthy and varied diet to prepare dishes Understand where food comes from. Cooking and nutrition* *Can they describe the properties of the ingredients they are using?* *Can they explain what it means to be hygienic?* *Are they hygienic in the kitchen?*	*Health awareness – continuous throughout KS2 know that a variety of food is needed in the diet because different foods provide different substances required for our health, namely nutrients (carbohydrate, protein, fat, vitamins and minerals), water and fibre. (SCIENCE LINK) -be aware that advertising can influence what they choose to eat. Food preparation skills - follow a*

	dough, spooning materials and substances into bowls and containers.	*Healthy living week, Health and well-being day.* *What do we need to keep safe and healthy?* **Use cutlery in continuous provision when cutting dough spooning materials and substances into bowls and containers.** **Dinner ladies to encourage correct use of cutlery at Lunch time** ****Fruit Kebabs**	Handas Surprise • *Do they wash their hands and make sure that surfaces are clean?* Remind before every cooking activity **Use the basic principles of a healthy and varied diet to prepare dishes* **Mixing basic ingredients** **Bread making** **Sandwich making** ****Fruit Faces** **(Acrimboldo)**	****** Vegetable biryani**	*simple recipe under guidance carrying out instructions with independence. - to use two spoon sizes to transfer ingredients into different sized containers building accuracy (eg mixture into baking case) - use a cutter considering placement to enable maximum amount produced. - cut medium resistance foods with a veg knife using a fork or grip to secure. - snip suitable foods (eg herbs, spring onions) into even pieces*
	****All year groups look at food and where it comes from as part of our whole school Healthy living week.**				
Breadth of Study	*Construction* *Cooking and nutrition*		*Construction* *Cooking and nutrition* *Textile*	*Mechanisms* *Cooking and nutrition* *Use of Material*	
Artists Designers and crafts people			**Designers of London Landmarks.** **Sir Christopher Wren**	**African Art, Instruments, fabrics.**	
Technology					
Curriculum links			**Geography – London** **Science - Materials**	**History – Castles, Titanic** **Geography – Maps,**	

				Environments (Arctic Rainforest, Ocean)	
Key Vocabulary	**NURSERY** *Picture, drawing, ideas*	**RECEPTION** *Picture, drawing, ideas, label, materials*	**YEAR 1** *Picture, drawing, ideas, label, materials, purpose, function, product, develop, model, template, mock up, information*	**YEAR 2** *Picture, drawing, ideas, label, materials, purpose, function, product, develop, model, template, mock up, information*	**Year 3**

KEY STAGE 1

Purpose of Study

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. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.

Aims

The national curriculum for design and technology aims to ensure that all pupils:

- *develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world*
- *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*
- *critique, evaluate and test their ideas and products and the work of others*
- *understand and apply the principles of nutrition and learn how to cook*

Attainment targets

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

Schools are not required by law to teach the example content in [square brackets].

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KS2

Cooking and Nutrition -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. National curriculum (KS2)

Key stage 2

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:

- *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*

Aims

The national curriculum for art and design aims to ensure that all pupils:

- *produce creative work, exploring their ideas and recording their experiences*
- *become proficient in drawing, painting, sculpture and other art, craft and design techniques*
- *evaluate and analyse creative works using the language of art, craft and design*
- *know about great artists, craft makers and designers, and understand the historical and cultural development of their art forms*