Kenmore Park Infant & Nursery School.

D&T Curriculum Overview.

Intent	Our D&T curriculum aims to inspire pupils to be innovative and creative thinkers who show interest for the product design cycle by generating ideas, creating new products, and evaluating them**. We want pupils to develop the confidence to design, model, and test the products, and to become reflective learners who evaluate their work and the work of others**. Through our curriculum we aim to build an awareness of the impact of design and technology on our lives and encourage pupils to become resourceful, enterprising citizens who will have the skills to contribute to future design advancements.
Implementation	We have chosen to use the D&T scheme of work from Kapow to ensure the curriculum and progression of skills is covered across the school. Each unit follows the design process stipulated in the National Curriculum (**design, make and evaluate**) and has a particular theme and focus from the technical knowledge, or cooking and nutrition section of the curriculum. The key areas are revisited again and again with increasing complexity, allowing pupils to revisit and build on their previous learning. Lessons incorporate a range of teaching strategies from independent tasks, paired and group work including practical hands-on and inventive tasks. This variety means that lessons are engaging and appeal to those with a variety of learning styles. Differentiated guidance is available for every lesson to ensure that lessons can be accessed by all pupils and opportunities to stretch pupils' learning are available when required. Knowledge organisers for each unit support pupils in building a foundation of factual knowledge by encouraging recall of key facts and vocabulary.
Impact	Through the implementation of this curriculum, our learners should be able to: ● Understand how to use and combine tools to carry out different processes for shaping, decorating, and manufacturing products. ● Build and apply a variety of skills, knowledge and understanding to produce high quality, innovative outcomes, including models and products to fulfil the needs of users and clients. ● Understand and apply the principles of healthy eating, diets, and recipes, including key processes, food groups and cooking equipment. ● Have an appreciation for key individuals, inventions, and events in history and of today that impact our world. ● Recognise how our decisions can impact the wider world in terms of community, social and environmental issues. ● Self-evaluate and reflect on learning at different stages and identify areas to improve. ● Meet the end of key stage expectations outlined in the National curriculum for Design and technology.

		Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2	Stand alone lessons (optional)
Nursery								Seasonal projects for Christmas and Easter: 1 lesson
Unit/Topic		**<u>Junk Modelling: Hibernating boxes</u>** (seasonal project) Children learn what it means for an animal to hibernate and design a hibernating box for a hedgehog, using boxes from the junk modelling area and different natural resources: leaves, twigs, grass.	<u>Art and Design</u>	**<u>Chinese fans</u>** Using paper plates and lollypop sticks, children design and make their own Chinese fans.	<u>Art and Design</u>	**Textiles: Flower threading** (seasonal projects) Using a range of tools and techniques, pupils create their own flower threading pattern and complete it using coloured wool.	<u>Art and Design</u>	
Knowledge, skills and understanding **I can…**								
Skills	**Design**	• I can make **verbal plans** and materials choices.		• I can make verbal plans and materials choices. • I can **decide what resources** to use to decorate my fan.		• I can make verbal plans and materials choices. • I can **decide which flower template** I want to use.		
	Make	• I can make a hibernating house for a hedgehog, by arranging the and **gluing** the natural resources and gluing them onto the box. • I can improve my **fine motor skills** by handling different tools and materials: natural resources, glue etc.		• I can **join materials together** using masking tape. • I can make a fan that looks like the designs presented. • I can **use the scissors** to cut out the fan's template. • I can **decorat**e my fan using sequins.		• I **can draw around the template** to make my flower. • I can **cut out** the flower. • I can **press the hole puncher t**o make the holes for threading. • I can **thread wool** through the holes to complete my flower design. • I can improve my **fine motor skills** by		

						handling different tools and materials.		
	Evaluate	• I can **check** if my model is a good winter house for a hedgehog, by **comparing it to the design criteria**: Is it a sheltered, safe place for winter, have I used natural resources to build it (leaves, twigs), does it provide food (acorns, conkers).		• I can **check** if my model resembles the design, by looking at the main elements: handle, fan, decorations, how I joined the handle to the fan (use of masking tape, glue) • I can **test** my fan to see if it can be used for its purpose.		• I can **reflect** on my finished product and comparing it to the design, **describing** how I made it and what materials I used to make it.		
Knowledge		• To know what hibernating means. • To know which animals need to hibernate. • To name some animals that hibernate.		• To know some facts about the Chinese New Year celebration. • To know what a Chinese fan looks like. • To know how to attach the lollipop stick to the main part of the fan.		• To know that a design is a way of planning our ideas before we start. • To know that threading is putting one material through an object.		
Reception								
Unit/Topic		**Structure: Junk Modelling** (6 lessons) Explore and learn about various types of permanent join (glue, PVA, masking tape, selo tape) and temporary join (pipe cleaners, blu-tack string, nut-bolts). The children are encouraged to tinker using a combination of materials and joining techniques in the junk modelling area.		**Structure: Boats** (6 lessons) Explore what is meant by 'waterproof', 'floating' and 'sinking', then experiment and make predictions with various materials to carry out a series of tests. Children learn about the different features of boats and ships before investigating their shape and structures to build their own		**Textiles: Bookmarks** (6 lessons) Develop and practise threading and weaving techniques using various materials and objects: e.g., use ribbon, string, pipe cleaners to thread through fence, threading boards, number frames (numicon type), weaving frames. Children look at the history of the bookmark from Victorian times versus modern-day styles. The pupils		

						apply their knowledge and skills to design and sew their own bookmarks. .		
ELG		**Physical development** -Develop small motor skills so that they can use a range of tools competently, safely and confidently. -ELG: Fine Motor Skills: Use a range of small tools, including scissors, paint brushes and cutlery. **Expressive Arts and Design** -Explore, use and refine a variety of artistic effects to express ideas and feelings. -Return to and build on their previous learning, refining ideas and developing their ability to represent them. -Create collaboratively, sharing ideas, resources and skills. -ELG: Creating with materials: Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. -ELG: Creating with materials: Share their creations, explaining the process they have used.					
Knowledge, skills and understanding:								
Skills	**Design**	• I can **make verbal plans** and material choices. • I can make a junk model		• I can **draw the design** of a junk model boat. • I can use knowledge from exploration **to inform design** (the boat needs to float and be waterproof, shape of the boat).		• I can say what a good design needs (clear drawings and plans). • I can **design a simple pattern with paper**. • I can design a bookmark. • I can **choose from available materials**: different-coloured string, different-coloured binca squares or hessian.		
	Make	• I can improve fine motor/scissor skills with a variety of materials**: tear** the masking tape to join two boxes**, tie** a knot,		• I can **join** the parts together making a boat that floats and is waterproof, considering material choices: plastic or carboard, aluminium foil, wood, lollypop sticks or paper straw.		• I can **use the scissors** to develop fine motor/cutting skills. • I can explore fine motor/**threading** and **weaving**(under, over		

		cut cardboard and soft plastic, **twist** the pipe cleaners. • I can **join** materials in a variety of ways (temporary and permanent). • I can join different materials together. • I can describe my junk model, and how I intend to put it together.				technique) with a variety of materials. • I can **use a prepared needle and wool to practice threading**.		
	Evaluate	• I can **give a verbal evaluation** of my own and others' junk models with adult support. • I can **check** to see if my model matches my plan. • I can **consider what I would do differently** if I were to do it again. • I can **describe** my favourite and least favourite part of my model.		• I can **make predictions** about, and **evaluating different materials** (wood, plastic, paper, cardboard) to see if they are waterproof. • I can **make predictions about, and evaluate existing boats** to see which floats best. • I can **test my design** and reflect on what could have been done differently. • I can **investigate** how the shapes and structure of a boat affect the way it moves.		• I can **reflect** on my finished product and **compare** it to the design I made.		
Knowledge	**Technical**	• To know there are a range to different materials that can be used to make a model and that they are all slightly different. • To know to make simple suggestions to fix their junk model.		• To know that 'waterproof' materials are those which do not absorb water.		• To know that a design is a way of planning our idea before we start. • To know that threading is putting one material through an object.		
	Additional							
Year 1								
Unit/Topic		D&T **Structure: Constructing a**		D&T **Textiles: Puppets** (4 lessons)		D&T **Food: fruit and vegetables**		**Mechanism: Make a moving**

		<u>windmills</u> (4 lessons) Designing, decorating and building a windmill for their mouse client to live in, developing an understanding of different types of windmills, how they work and their key features.		Exploring different ways of joining fabrics before creating their own hand puppets. Children work to develop their technical skills of cutting, gluing, stapling and pinning.		(4 lessons) Handling and exploring fruits and vegetables and learning how to identify which category they fall into (**fruits** those that have seeds, **vegetables**: roots, bulbs, stem, leaves), before undertaking taste testing to establish their chosen ingredients for the smoothie they will make a design packaging for.		**<u>story book</u>** 1 Lesson
National Curriculum Links KS1								
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.						
Knowledge, skills and understanding:		**Autumn 1**		**Spring 1**		**Summer 1**		
Skills	**Design**	• I can show the importance of a **clear design criteria** (it helps you to make the product and choose the resources and the steps you need to take).		• I can **use a template to create a design** for a puppet.		• I can **design smoothie carton packaging** by-hand or on ICT software.		

		• I can include individual preferences and requirements in a design (**according to what the client wants**).						
	Make	• I can **make stable structures** from card, tape and glue. • I can learn how to **turn 2D nets into 3D** structures. • I can **follow instructions** to cut and assemble the supporting structure of a windmill. • I can make functioning turbines and axles (by **folding paper** and **inserting** the pipe cleaners into the main structure) which are **assembled** into a main supporting structure.		• I can **cut fabric** neatly with scissors. • I can **use joining methods** to decorate a puppet: glue, fastening pins, staples. • I can **sequence the steps** taken during construction: draw around the template, cut the fabric, join the parts.		• I can **chop fruit** and vegetables safely to make a smoothie. • I can identify if a food is a fruit or a vegetable. • I can learn **where and how fruits and vegetables grow.**		
	Evaluate	• I can **evaluate** a windmill **according to the design** criteria, **test**ing whether the **structure is strong and stable** and altering it if it isn't. • I can **suggest points for improvements**.		• I can **reflect** on a finished product, **explaining likes and dislikes.**		• I can **taste and evaluate** different food combinations. • I can **describe appearance, smell and taste.** • I can **suggest information** to be included on packaging.		
Knowledge	**Technical knowledge**	• To understand that the shape of materials can be changed to improve the strength and stiffness of structures.		• To know that 'joining technique' means connecting two pieces of material together. • To know that there are various temporary methods of joining fabric by using staples. glue or pins.		• Understanding the difference between fruits and vegetables. • To understand that some foods typically known as vegetables are actually fruits (e.g.		

		• To understand that cylinders are a strong type of structure (e.g. the main shape used for windmills). • To understand that axles are used in structures and mechanisms to make parts turn in a circle. • To begin to understand that different structures are used for different purposes. • To know that a structure is something that has been made and put together.		• To understand that different techniques for joining materials can be used for different purposes. • To understand that a template (or fabric pattern) is used to cut out the same shape multiple times. • To know that drawing a design idea is useful to see how an idea will look		cucumber). • To know that a blender is a machine which mixes ingredients together into a smooth liquid. • To know that a fruit has seeds and a vegetable does not. • To know that fruits grow on trees or vines. • To know that vegetables can grow either above or below ground. • To know that vegetables can come from different parts of the plant (e.g. roots: potatoes, leaves: lettuce, fruit: cucumber).		
	Additional	• To know that a client is the person I am designing for. • To know that design criteria is a list of points to ensure the product meets the clients needs and wants. • To know that a windmill harnesses the power of wind for a purpose like grinding grain, pumping water or generating electricity. • To know that windmill turbines use wind to turn and make the machines inside work. • To know that a		n/a		n/a		

		windmill is a structure with sails that are moved by the wind. • To know the three main parts of a windmill are the turbine, axle and structure.						
Year 2		Autumn 1		Spring 1		Summer 1		
Unit/Topic		D&T **<u>Structure: Baby Bair's chair</u>** (4 lessons) Using the story of Goldilocks and the Three Bears, children help baby bear by making him a brand-new chair. When designing the chair, they consider his needs and what he likes, and explore ways of building it so that is strong.		D&T **<u>Mechanism: Fairground wheel</u>** (4 lessons) Designing and creating their own Ferris wheels, considering how the different components (axle, pods, wheel, base) fit together so that the wheels rotate and the structures stand freely. Pupils select appropriate materials and develop their cutting and joining skills.		D&T **<u>Mechanism: Making a moving monster.</u>** (4 lessons) After learning the terms pivot, lever and linkage, children design a monster which will move using a linkage mechanism. Children practise making linkages of different types and varying the materials (paper, cardboard, decorating resources) they use to bring their monster to life.		Food: A balanced diet 1 lesson
National Curriculum Links KS1								
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.							

Knowledge, skills and understanding:		Autumn 1		Spring 1		Summer 1		
Skills	**Design**	• I **can generate and communicate ideas using sketching and modelling.** • I can learn about different types of structures, found in the natural world and ineveryday objects.		• I can **select** a suitable linkage (axle, wheel) system to produce the desired motion(rotation). • I can **design a wheel, by drawing and labelling the parts.**		• I can **create a class design criteria** for a moving monster. • I can **design a moving monster for a specific audience** in accordance with a designcriteria.		
	Make	• I can **make a structure** according to design criteria. • I can **create joints and structures from paper/card and tape**. • I can **build a strong and stiff structure** by folding paper.		• I can **select materials** according to their characteristics: strength, stability. • I can **follow a design**.		• I can **make linkages** using card for levers and split pins for pivots. • I can experiment with linkages **adjusting the widths, lengths and thicknesses** of card used. • I can **cut and assemble components** neatly.		
	Evaluate	• I can **explore the features** of structures. • I can **compare the stability** of different shapes. • I can **test the strength of my own structures**. • I can **identify the weakest part of a structure.** • I can **evaluate the strength**, stiffness and stability of my own structure.		• I can **evaluate different designs** that have been produced in class. • I can **testing and adapt a design** so that it can meet the design criteria – the wheel rotates.		• I can **evaluate my own designs** against design criteria. • I can **use peer feedback** to modify a final design.		
Knowledge	**Technical**	• To know that shapes and structures with wide, flat bases or legs are the most		• To know that different materials have different properties and are therefore suitable for different uses.		• To know that mechanisms are a collection of moving parts that work together as amachine to produce		

		stable. • To understand that the shape of a structure affects its strength. • To know that materials can be manipulated to improve strength and stiffness. • To know that a structure is something which has been formed or made from parts. • To know that a 'stable' structure is one which is firmly fixed and unlikely to change or move. • To know that a 'strong' structure is one which does not break easily. • To know that a 'stiff' structure or material is one which does not bend easily.				movement. • To know that there is always an input and output in a mechanism. • To know that an input is the energy that is used to start something working. • To know that an output is the movement that happens as a result of the input. • To know that a lever is something that turns on a pivot. • To know that a linkage mechanism is made up of a series of levers.		
	Additional	• To know that natural structures are those found in nature. • To know that man-made structures are those made by people.		• To know the features of a Ferris wheel include the wheel, frame, pods, a base an axle and an axle holder. • To know that it is important to test my design as I go along so that I can solve any problems that may occur.		• To know some real-life objects that contain mechanisms.		
Next steps(Yr 3)		**Digital world:** Explore the digital world by making simple electronic models: e.g. electronic charm		**Mechanism:** Continue to develop their understanding of mechanical system: making pneumatic toys.		**Textile** Continue to develop their stitching skills by learning the make a cross stitch		**Eating seasonally** Explore and learn about fruits/vegetables specific to each season and learn how to eat to stay healthy.