



Killamarsh Infant and Nursery School

Key Learning in Design and Technology

Curriculum Intent

It is the intent of Killamarsh Infant and Nursery School for Design Technology to be taught in Key Stage 1 through at least one topic per term, which includes one topic relating to food. Design Technology projects are often made cross curricular - linking to other subjects taught.

Key objectives of intent within the Design Technology Curriculum based on the National Curriculum 2014 guidance:

- Products are to be made for a purpose.
- Individuality should be ensured in children's design and construction of products.
- Delivery of the two strands: Designing and Making and Cooking and Nutrition.
- Teaching the importance of making on-going changes and improvements during making stages.
- Looking into seasonality of ingredients and how they are grown, caught or reared.

Aims

The national curriculum for Design and Technology aims to ensure that all pupils:

- develop the creative, technical and practical expertise need 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.

Curriculum Implementation

The teaching of Design Technology across Key Stage 1 follows the National Curriculum. Children design products with a purpose in mind and an intended user of the products. Food technology is implemented across the school with children developing an understanding of where food comes from, the importance of a varied and healthy diet and how to prepare this.

Pupils design and make products that solve real and relevant problems within a variety of contexts. It is very cross - curricular and draws upon subject knowledge and skills within Mathematics, Science, History, Computing and Art. Children learn to take risks, be reflective, innovative, enterprising and resilient. Through the evaluation of past and present technology they can reflect upon the impact of Design Technology on everyday life and the wider world.

Early Years Foundation Stage

During the EYFS pupils develop their artistic and cultural awareness to support their imagination and creativity. It is important that children have regular opportunities to engage with the arts, enabling them to explore and play with a wide range of media and materials. The quality and variety of what children see, hear and participate in is crucial for developing their understanding, self-expression, vocabulary and ability to communicate through the arts. The frequency, repetition and depth of their experiences are fundamental to their progress in interpreting and appreciating what they hear, respond to and observe.

They have the opportunities to:

- 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.

National Curriculum requirements at Key Stage 1

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, (or 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.

National Curriculum requirements for food and Nutrition at KS1

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.

Pupils should be taught to:

- use the basic principles of a healthy and varied diet to prepare dishes
- understand where food comes from.

Curriculum Impact

Assessment of children's learning in Design Technology is an ongoing monitoring of children's understanding, knowledge and skills by the class teacher, throughout lessons. This assessment is then used to inform differentiation, support and challenge required by the children.

Structures

Reception	Knowledge	Skills
Junk Modelling	<ul style="list-style-type: none"> • To know there are a range to different materials that can be used to make a model and that they are all slightly different. • Making simple suggestions to fix their junk model. 	<ul style="list-style-type: none"> • Making verbal plans and material choices. • Developing a junk model. • Improving fine motor/scissor skills with a variety of materials. • Joining materials in a variety of ways (temporary and permanent). • Joining different materials together. • Describing their junk model, and how they intend to put it together. • Giving a verbal evaluation of their own and others' junk models with adult support. • Checking to see if their model matches their plan. • Considering what they would do differently if they were to do it again. • Describing their favourite and least favourite part of their model.
Boats	<ul style="list-style-type: none"> • To know that 'waterproof' materials are those which do not absorb water. • To know that some objects float and others sink. • To know the different parts of a boat. 	<ul style="list-style-type: none"> • Designing a junk model boat. • Using knowledge from exploration to inform design. • Making a boat that floats and is waterproof, considering material choices • Making predictions about, and evaluating different materials to see if they are waterproof. • Making predictions about, and evaluating existing boats to see which floats best. • Testing their design and reflecting on what could have been done differently. • Investigating the how the shapes and structure of a boat affect the way it moves.

Year 1/2	Knowledge	Skills
Constructing a Windmill	<ul style="list-style-type: none"> • To know that shapes and structures with wide, flat bases or legs are the most 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. • To know that natural structures are those found in nature. • To know that man-made structures are those made by people. 	<ul style="list-style-type: none"> • Generating and communicating ideas using sketching and modelling. • Learning about different types of structures, found in the natural world and in everyday objects. • Making a structure according to design criteria. • Creating joints and structures from paper/card and tape. • Building a strong and stiff structure by folding paper. • Exploring the features of structures. • Comparing the stability of different shapes. • Testing the strength of own structures. • Identifying the weakest part of a structure. • Evaluating the strength, stiffness and stability of own structure.

Textiles

Reception	Knowledge	Skills
Bookmarks	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • Discussing what a good design needs. • Designing a simple pattern with paper. • Designing a bookmark. • Choosing from available materials. • Developing fine motor/cutting skills with scissors. • Exploring fine motor/threading and weaving (under, over technique) with a variety of

		<p>materials.</p> <ul style="list-style-type: none"> • Using a prepared needle and wool to practise threading. • Reflecting on a finished product and comparing to their design.
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Year 1/2	Knowledge	Skills
Puppets	<ul style="list-style-type: none"> • 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. • 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. 	<ul style="list-style-type: none"> • Using a template to create a design for a puppet. • Cutting fabric neatly with scissors. • Using joining methods to decorate a puppet. • Sequencing the steps taken during construction. • Reflecting on a finished product, explaining likes and dislikes.

Cooking and Nutrition

Reception	Knowledge	Skills
Soup	<ul style="list-style-type: none"> • To know that soup is ingredients (usually vegetables and liquid) blended together. • To know that vegetables are grown. • To recognise and name some common vegetables. • To know that different vegetables taste different. • To know that eating vegetables is good for us. • To discuss why different packages might be used for different foods. 	<ul style="list-style-type: none"> • Designing a soup recipe as a class. • Designing soup packaging. • Chopping plasticine safely. • Chopping vegetables with support. • Tasting the soup and giving opinions. • Describing some of the following when tasting food: look, feel, smell and taste. • Choosing their favourite packaging design and explaining why

Year 1/2	Knowledge	Skills
A Balanced Diet	<ul style="list-style-type: none"> • To know that 'diet' means the food and drink that 	<ul style="list-style-type: none"> • Design a school dinner, healthy wrap based on a food

	<p>a person or animal usually eats.</p> <ul style="list-style-type: none"> • To understand what makes a balanced diet. • To know where to find the nutritional information on packaging. • To know that the five main food groups are: • Carbohydrates, fruits and vegetables, protein, dairy and foods high in fat and sugar. • To understand that I should eat a range of different foods from each food group, and roughly how much of each food group. • To know that nutrients are substances in food that all living things need to make energy, grow and develop. • To know that 'ingredients' means the items in a mixture or recipe. • To know that I should only have a maximum of five teaspoons of sugar a day to stay healthy. • To know that many food and drinks we do not expect to contain sugar do; we call these 'hidden sugars'. 	<p>combination which works well together.</p> <ul style="list-style-type: none"> • Slicing food safely using the bridge or claw grip. • Constructing a wrap that meets the design brief. • Describing the information that should be included on a label. • Evaluating which grip was most effective.
<p>Fruit and Vegetables</p>	<ul style="list-style-type: none"> • Understanding the difference between fruits and vegetables. • To understand that some foods typically known as vegetables are actually fruits (e.g. 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). 	<ul style="list-style-type: none"> • Designing smoothie carton packaging by-hand or on ICT software. • Chopping fruit and vegetables safely to make a smoothie. • Identifying if a food is a fruit or a vegetable. • Learning where and how fruits and vegetables grow. • Tasting and evaluating different food combinations. • Describing appearance, smell and taste. • Suggesting information to be included on packaging.

Mechanisms

Year 1/2	Knowledge	Skills
Making a Moving Aeroplane	<ul style="list-style-type: none"> • To know that mechanisms are a collection of moving parts that work together as a machine to produce movement. • To know that there is always an input and an 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 	<ul style="list-style-type: none"> • Creating a design criteria for a moving aeroplane as a class. • Designing a moving aeroplane for a specific audience in accordance with a design criteria. • Making linkages using card for levers and split pins for pivots. • Experimenting with linkages adjusting widths, lengths and thickness of card used. • Cutting and assembling components neatly. • Evaluating own designs against design criteria. • Using peer feedback to modify a final design.
Making a Moving Story Book	<ul style="list-style-type: none"> • To know that a mechanism is the parts of an object that move together. • To know that a slider mechanism moves an object from side to side. • To know that a slider mechanism has a slider, slots, guides and an object. • To know that the bridges and guides are bits of card that purposefully restrict the movement of the slider. 	<ul style="list-style-type: none"> • Explaining how to adapt mechanisms using bridges or guides to control the movement. • Designing a moving story books for a given audience • Following a design to create moving models that use levers and sliders. • Testing a finished product, seeing whether it moves as planned and if not, explaining why and how it can be fixed. • Reviewing the success of a product by testing it with its intended audience.

Future Progression

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].

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.

Key Vocabulary in Design and Technology in EYFS

Food	Textiles		Structures and Mechanisms		All D&T Topics
<ul style="list-style-type: none"> ▪ Apron ▪ Chop ▪ Cut ▪ Mix ▪ Equipment ▪ Fork ▪ Knife ▪ Spoon 	<ul style="list-style-type: none"> ▪ Thread ▪ Weave ▪ Pinch ▪ Push ▪ Pull ▪ Through ▪ Under ▪ Over 	<ul style="list-style-type: none"> ▪ Bookmark ▪ Embroider ▪ Design 	<ul style="list-style-type: none"> ▪ Waterproof ▪ Material ▪ Absorb ▪ Leak ▪ Wet ▪ Dry ▪ Prediction ▪ Variable 	<ul style="list-style-type: none"> ▪ Smooth ▪ Bendy ▪ Bumpy ▪ Scissors ▪ Blades ▪ Handle ▪ Snip ▪ Cut 	<ul style="list-style-type: none"> ▪ Build ▪ Make ▪ Design ▪ Reflect ▪ Evaluate ▪ Think

<ul style="list-style-type: none"> ▪ Bowl ▪ Taste – senses 	<ul style="list-style-type: none"> ▪ Up ▪ Down ▪ Back ▪ Front ▪ Pattern ▪ Sew ▪ Sewing Needle ▪ Wool ▪ Thread ▪ Hessian 		<ul style="list-style-type: none"> ▪ Fair test ▪ Experiment ▪ Investigation ▪ Junk ▪ Join ▪ Stick ▪ Cut ▪ Bend 	<ul style="list-style-type: none"> ▪ Slot 	
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Key Vocabulary in Design and Technology in Year 1 and 2

Cooking and Nutrition		Textiles	Structures	Mechanisms	All D&T Topics
<ul style="list-style-type: none"> ▪ Fruit ▪ Vegetable ▪ Seed ▪ Leaf, ▪ Root ▪ Stem ▪ Smoothie ▪ Healthy ▪ Carton ▪ Design ▪ Flavour ▪ Peel slice 	<ul style="list-style-type: none"> ▪ Balanced diet ▪ Balance ▪ Carbohydrate ▪ Dairy ▪ Fruit, ▪ Ingredients ▪ Oils ▪ Sugar ▪ Protein ▪ Vegetable ▪ Design ▪ Criteria 	<ul style="list-style-type: none"> ▪ Decorate ▪ Design ▪ Fabric, ▪ Glue ▪ Model ▪ Hand puppet, ▪ Safety pin ▪ Staple ▪ Stencil, ▪ Template. 	<ul style="list-style-type: none"> ▪ Design criteria ▪ Man-made, ▪ Natural ▪ Properties, ▪ Structure ▪ Stable ▪ Shape ▪ Model ▪ Test. 	<ul style="list-style-type: none"> ▪ Axle ▪ Design criteria ▪ Input, ▪ Linkage ▪ Mechanical ▪ Output, ▪ Pivot ▪ Wheel ▪ Sliders ▪ Mechanism ▪ Adapt ▪ Design ▪ Model ▪ Template ▪ Assemble, ▪ Test 	<ul style="list-style-type: none"> ▪ Design ▪ Make ▪ Evaluate ▪ Investigating ▪ User ▪ Product ▪ Purpose ▪ Design criteria ▪ Function ▪ Names for all tools and equipment used.