Latimer Primary School

Design and Technology

Curriculum

Developing Responsibility; Caring About Achievement

Design and Technology at Latimer

At Latimer, we have adopted the Primary Knowledge Curriculum (PKC) for Design and Technology. This provides a clear structure and progression of knowledge, skills, vocabulary as well as clear assessment opportunities throughout the curriculum.

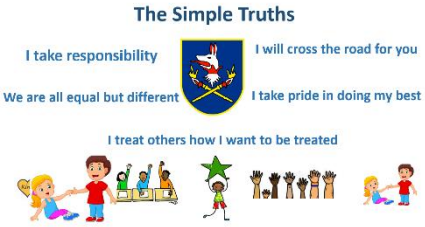
This scheme has been chosen due to its clear focus on the three key pillars of progression in Design and Technology as well as cooking and nutrition. Children progress through each area through the process of *'research and investigate, design, make, use and evaluate'*, whilst meeting the objectives outlined in the National Curriculum.

	Textiles	**Mechanisms**	**Circuits**	**Cooking and Nutrition**
PKC Unit	Sew	Build		Cook

The PKC for Design and Technology weaves through it the concepts of: the environment and sustainability, and enterprise and innovation which reflect the overarching aims of the curriculum and our Simple Truths. **'To Take Responsibility and 'Take Pride in Doing our Best'**

Through Design and Technology, at Latimer, our children will:

- Understand how to create and build **'responsibly'** and sustainably
- Become creative thinkers, innovators and risk-takers
- make direct links to the world around them
- understand how things work and the process of designing with a purpose in mind
- build on past childhood experiences of investigating objects around them
- develop thinking by solving real and relevant problems within a variety of contexts



Curriculum start and End Points

As our children enter our school, our EYFS provision develops an early understanding of design and the fundamental fine motor skills needed. Children explore their responses to what they see, explore textures and scale; use different materials and tools and learn different techniques for joining.

As children move through the school they research, design and evaluate simple products whilst learning the skills and techniques needed. In sew, they will learn to use embroidery, applique and plaiting; in build they will create cars, moving toys and objects whilst in cooking and nutrition they gradually build their basic cooking skills whilst learning about the concepts of nutrition, seasonality and foods from different culture.

By the time they leave us, our children will have learnt an array of skills that they can apply to everyday life in the future as well as an understanding of the importance that design plays in everyday life and the creation of products in our society.

SEND Adaptations

For the majority of our children with SEND music is accessible and enjoyable. We aim that all children of all abilities and needs can access Design and Technology to a high standard through suitable adaptations to the curriculum. These may include:

- teaching is adjusted to reduce the burden on working memory and build routine and repetition into learning.
- Any written materials or outcomes are adapted, if needed, to ensure to provide achievable challenge.
- Adapted resources to support fine motor skills should be provided such as larger pencils, easy grip scissors, or frames using items such as masking tape to hold items down when joining.
- a variety of models and scaffolds to support learners
- Pre-teaching of new vocabulary or skills

Designing our Design and Technology Curriculum

Latimer's Design and Technology curriculum has been designed using Primary Knowledge Curriculum scheme of work. Our subject expert has reviewed this curriculum and identified the essential knowledge and skills that our children need to know and be able to do- that can be effectively taught in the time available.

Substantive and Disciplinary Knowledge in Design and Technology

Design and Technology progression stems across three pillars.

Substantive Knowledge **Knowledge about the Subject**	**Disciplinary knowledge** **Using the knowledge to create or analyse**
The substantive concepts that we develop through our Design and Technology curriculum are:	Disciplinary knowledge in D & T are the skills to design, create, make and evaluate a product. Disciplinary skills are far reaching as these not only include the questioning and research skills but the physical skills of creation such as
- Food and Nutrition - Mechanisms - Structures - Systems - Electrical Systems - Understanding Materials - Textiles	- **Investigation** – This includes researching and finding about existing products and designers. - **Design** - The art or process of deciding how something will look or work. - **Making** – The physical skills to make or create the product. - **Evaluate** - Form an opinion of the value or quality of something after careful thought. - **Apply** - Use something or make something work in a particular situation.

The National Curriculum DT Objective of 'apply their understanding of computing to program, monitor and control their products' is delivered through the computing curriculum.

Spiritual, Moral, Social & Cultural (SMSC) Development in Design and Technology

Spiritual • Our curriculum, supports spiritual development by allowing pupils the opportunity to exercise imagination, inspiration, intuition and insight through creativity and risk taking in analysing, designing and manufacturing a range of products. It instils a sense of awe, wonder and mystery when studying the natural world or human achievement. Encouraging creativity allows pupils to express innermost thoughts and feelings and to reflect and learn from reflection, for example, asking 'why?', 'how?' and 'where?'.
Moral • D.T supports moral development by raising awareness of the moral dilemmas by encouraging pupils to value the environment and its natural resources and to consider the environmental impact of everyday products. It educates pupils to become responsible consumers.
Social • Our Design and Technology curriculum has the concepts of environmental responsibility and innovation woven through. Our children learn to eat seasonal products; upcycle fashion and build upon their learning of the water cycle. Throughout the curriculum they will learn to work together collaboratively in order to investigate, design and create and to give constructive criticism.
Cultural • Cultural understanding is particularly developed through the cooking and nutrition element of the curriculum. Children explore foods from a variety of cultures, including mezee, pitta breads, pasta, couscous, honeycake and pizza.

Design and Technology Overview

Year Group	Autumn	Spring	Summer
EYFS	• Junk modelling of our homes • Pizzas using farm ingredients • Peg puppets using glued joins. Gluing fabric together not 'sewing'	• Threading • Cutting • Gluing/Joining	
Year 1	**Cook** Dips and Vegetables Jam Tarts/Mince Pies	**Sew** Animal Sock Puppets	**Build** Vehicles
Year 2	**Cook** Pizza Gingerbread	**Sew** Pencil Cases	**Build** Moving Pictures
Year 3	**Sew** Key Rings/Decorations	**Build** Pop-up Books	**Cook** Bread and Butter Pasta
Year 4	**Sew** Cushions	**Build** Moving Miniature Playgrounds	**Cook** Ratatouille and Couscous Apple Crumble
Year 5	**Build** Cams Toys	**Cook** Honey Cake Pitta Bread	**Sew** Bags
Year 6	**Build** Water Wall	**Cook** Mezze **Build** Electrical Toys - Part of Science Electricity Unit	**Sew** Upcycling fashion

Units should be taught in the order outlined. Each unit is 5 hours long and designed to be completed in a block of 2-3 afternoons or a full day.

All units follow the Primary Knowledge Curriculum Scheme of Work.

Progression in Substantive Knowledge (PKC Curriculum DT)

	Food and Nutrition	Mechanisms	Understanding Materials	Textiles
EYFS Statutory Framework	- M.S: ELG: Understanding the importance of healthy food choices - PD: Rec: Know and talk about the different factors that support their overall health and wellbeing: healthy eating.	- Select shapes appropriately: flat surfaces for building, a triangular prism for a roof etc. - Combine shapes to make new ones – an arch, a bigger triangle etc. - Circles for rolling etc ?	- PD: Rec: Develop their small motor skills so that they can use a range of tools competently, safely and confidently - ..... - ELG: 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.	Different materials can be fixed together using glue or tape. EAD: 3-4: Join different materials and explore different textures.
Year 1	- Nutrition- vegetables - Sweet v savoury - Cooked v raw - different cultures- Greece - Seasonality—preserving fruit for the winter	- Mechanical systems: wheels and axles - Wheels and axles in everyday examples	- Process of design - Making products with fabric - Properties of a range of materials - Choosing suitable materials - Strong stiff and stable - Properties and functionality	- Reusing/recycling materials - Fixing fabric together
Year 2	- Spices, spicy/sweet - Processed v homemade food - Preserving food - Cooking -Italy - History and cost of food	- Mechanical systems: levers and sliders - Levers and sliders in everyday examples	- Structures and materials to make levers and sliders in moving pictures strong, stiff and stable.	- fastenings, shape, joining, decoration - Join fabric together—sewing and gluing - Creating stitches with a needle and thread
Year 3	- Pasta, pasta production - Vegetables are part of a healthy diet - Tomatoes- preserving - Making bread with flour made from wheat	- Mechanical systems: linkages: moving pivot, fixed pivot, - types of motion - Linkages: uses and purpose in everyday examples	- Making products with fabric Types of fabric - natural/synthetic - Properties of fabric—thickness, softness, stretchiness - How fabric is fit for purpose	- size, materials, shape, joining, stitching, decoration

Progression in Substantive Knowledge (PKC Curriculum DT)

	- Yeast, wholegrains and health - Baking Dairy products, milk and butter production			

	Food and Nutrition	Mechanisms	Systems	Electrical Systems	Understanding Materials	Textiles
Year 4	- Ratatouille—food from France - Couscous—food from North Africa - The different parts of a plant which we eat - British cooking Different varieties of apples, seasonality - Environment, sustainability, affordability	- Gears: user and purpose in everyday examples	• Mechanical systems: gears, teeth, interlock, motion transfer, drive gear, driven gear, gearing up, gearing down • Structures and materials to make a product with gears	Electrical systems: circuits, batteries, bulbs and buzzers	- Types of fabric - natural/synthetic - Properties of fabric— thickness, softness, stretchiness	- Decoration— appliqué
Year 5	- Using yeast— leavened/unleavened bread, baking - Wheat production	- Everyday examples and purpose of cams mechanisms	- Mechanical systems: cams, followers, sliders, camshaft, rotary motion, linear motion, cam profiles		- Properties and suitability of fabric - How fabrics are made— weaving	- Decoration— appliqué, embroidery
Year 6	- Bread as part of a balanced, healthy diet, different types - Using yeast— leavened/unleavened bread, baking - Cooking from different culture- Mezze	- Mechanisms: pulleys, Archimedes' screw - Everyday examples and purpose of pulleys, purpose of Archimedes' screw	- Engineering systems to create environmentally friendly solutions—	- Electrical Toys: user and purpose in everyday examples. - Electrical systems: circuits, batteries, bulbs, buzzers and motors. - Structures and materials to make a product with an electrical circuit —	- Plastics pollution/recycling/reusable - 3d shapes, strong, stiff and stable - Fast fashion and globalisation Waste and pollution Upcycling, recycling, sustainability	- Processes for making clothes— seams and hems Decoration— appliqué, embroidery, buttons, gluing

Progression in Substantive Knowledge (PKC Curriculum DT)

				3d shapes, strong, stiff and stable.		

Progression in Disciplinary Skills (PKC Curriculum DT)

	Food and Nutrition	Mechanisms	Textiles
EYFS		- to use scissors safely - along a straight line, wavy line and around corners. - join two items using tape and glue - To experiment with different tools such as tweezers or cutters.	- To join different materials using glue or tape.
Year 1	- Following a simple recipe - Measuring in spoonfuls - Cutting, chopping - Using a knife and a chopping board - Bridge and claw technique - Cutting with scissors - Rubbing fat into flour - Mashing, mixing - Making, rolling and cutting pastry - Baking - Cooling	**Research and Investigate**: Different types of vehicles, different parts of a vehicle, explore wheels and axles in toy cars **Design:** Understand criteria talking, drawing, labelling **Make**: Select tools/materials for making a toy vehicle with wheels and axles, cutting, different ways of joining decorating, finishing **Use and Evaluate** evaluation against criteria and existing products	- making paper templates, drawing/cutting shapes, gluing, joining fabric, drying
Year 2	- making a dough/kneading, rolling and shaping - Spreading - Cutting/Slicing—bridge and claw technique - Tearing - Cracking an egg - Making a dough, rolling, cutting - Baking, cooling, decorating	**Research and Investigate**: Existing products **Make:** - Select tools/materials, - using paper templates/ patterns, drawing/cutting shapes, - threading a needle, - tying a knot, - running stitch, - gluing on decoration **Use and Evaluate**: written evaluation against criteria	- drawing/cutting shapes, threading a needle, - tying a knot, running stitch, gluing on decoration
Year 3	- Making a dough, kneading, rising - Following a recipe, measuring using scales - Using yeast - Mixing - Weighing using scales - Using a knife—claw method	- **Research and Investigate:** Linkages, - **Design**: Devising criteria - create annotated drawings and prototypes **Make:** - Select tools/materials for making linkages, - cutting,	• running stitch, backstitch, joining, • stuffing, gluing, sewing/gluing on a loop

Progression in Disciplinary Skills (PKC Curriculum DT)

	- Chopping - Peeling - Pressing	- different ways of joining, - decorating, finishing **Use and Evaluate:** written evaluation against own criteria and existing product	
Year 4	- Weighing using scales - Using a knife—bridge and claw method - Using a chopping board, chopping - Peeling an onion - Cooking vegetables - Soaking - Peeling, coring, chopping - Using a knife—bridge method- - Rubbing fat into flour - Sprinkling	- **Research and Investigate**: Gears - **Design:** Devising criteria - create exploded diagrams - Select tools/materials for making a moving toy with gears and an electrical circuit, cutting,	• overcast • stitch (whipstitch), appliqué, stuffing
Year 5	• Measuring using scales and a measuring jug • Mixing • Cracking an egg • Beating • Activating yeast • Mixing • Making a dough, kneading • Rolling and shaping	- Design: cross-sectional diagrams	• (whipstitch), joining, embroidery, appliqué, plaiting
Year 6	- Chopping, grating - Squeezing a lemon - Using a garlic press, seasoning - Soaking, mixing, mashing - Cracking an egg, cooking with meat	- Research and Investigate: Investigate water wall and pulleys - create annotated drawings and prototypes - Evaluation with user (Reception)	• attaching a button

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
join	nutrients	spice	natural	decoration	cam	Archimedes' screw
glue	vegetable	ginger	synthetic	appliqué	follower	pulley
stick	Fruit	dough	Weaving		camshaft	mezze
tools	Sweet/ savoury	home-made	Felt	gear	rotary motion	tzatziki
plan	raw	processed	mechanism	teeth	structure	baba ghanoush
materials	recipe	knead	component	interlock	Cross-sectional diagram	tabbouleh
mix	cook	Passata	linkage	drive gear	pitta	kofta
change/s	bake	slice	fixed pivot	driven dear	flatbread	seasoning
ingredients	chop	properties	moving pivot	motion transfer	Leavened/ unleavened	component parts
fruit	chopping board	Sew	reverse	gearing up	seasonality	stiff/stable
soft	pastry	fastening	parallel	gearing down	embroidery	
hard	season	needle	rotation	sprocket	plait	purpose/function
rough	preserve	thread	prototype	flour		aesthetic
smooth	materials	stitch		wholemeal		
bumpy	suitable	running stitch		Churn		
sticky	fabric	lever		rise		
cook	recycle	pivot				
	reuse	bar				
	waste	force/effort				
	design	Load				
	vehicle	slider				
	transport	slot				
	purpose	bridge				
	user	motion				
	wheel	linear motion				
	axle	oscillating motion				
	body					
	chassis					
	label					