Forest Town Primary School



Design and Technology Knowledge Progression Grid

At Forest Town, we are designers! We want our children to be inspired by Design and Technology and be creative and imaginative in an increasingly technological world.

We want to enable our children to talk about how things work and apply a growing body of knowledge, understanding and skills in order to design and make prototypes and products for a wide range of users. We want to encourage children to select appropriate tools and techniques when making a product, whilst following safe procedures.

Through Design and Technology we aim to develop our children's understanding of technological processes and products, their manufacture and their contribution to our society.

We want to foster enjoyment, satisfaction and purpose for our children through designing and making things. We want our children to critique, evaluate and test their ideas and products, and the work of others. We aim for all children to understand and apply the principles of nutrition and to learn how to cook. We want our children to understand how key events and individuals in design and technology have helped shape the world they live in.

By the time our children leave us at the end of KS2 we would like to ensure that all children become:

- Adventurous and creative problem-solvers with the confidence to take risks when designing and making products that solve real and relevant problems that matter to them.
- Independent inspired innovators with a greater awareness and understanding of how everyday products are designed and made through opportunities to critically evaluate existing products, thinking about their own needs and those of others.
- Responsible for their work and talk about how they were influenced to create their final outcomes.
- able to persevere and develop different techniques and skills to complete a piece of work.
- able to work together to reflect on their own and other's work using kindness and constructive feedback.

CURRICULUM LEADERS SARAH HANNANT & EMMA PALING

Kind Adventurous Persevere Independent Together

DESIGN & TECHNOLOGY

REVIEWED – SEPTEMBER 2024



Forest Town Primary School

Design & Technology Knowledge & Skills Progression Grid

Reviewed 2024

This is how our children's SUBJECT knowledge builds from EYFS to Year 6.

For pupils to become confident designers they need to become imaginative problem solvers who design and make products for a variety of needs, wants and values. They must acquire a wide range of subject knowledge through the key stage and draw on mathematical, computing, art and engineering knowledge. The progression plan will inform planning to ensure that learning is built within the lesson sequence, within the topic, within the year and overtime. We want our children to move from being a novice to becoming an expert designer and assertive cook.

Our learning is supplemented and supported by the **Design and Technology association scheme.**

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].

The National Curriculum (KS2)

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:

RESEARCH & 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.Select from tasks [for e select from construction properties aGenerate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.Select from construction properties aTechnical knowledge Apply their understanding of how to strengthen, stiffen and reinforce me Understand and use mechanical systems in their products [for example, understanding of computing to program, monitor and control		Select from and us tasks [for example Select from and us construction mate properties and aes d reinforce more cor for example, gears, r example, series cin or and control their	use a wider range of tools and equipment to perform practical ple, cutting, shaping, joining and finishing], accurately. I use a wider range of materials and components, including aterials, textiles and ingredients, according to their functional aesthetic qualities. complex structures. rs, pulleys, cams, levers, and linkages]. circuits incorporating switches, bulbs, buzzers, and motors]. eir products.		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.		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.		
EYFS	Year 1		Year 2	Year 3		Year 4	Year 5		Year 6
Cooking and Nutrition	Cooking and Nut Preparing fruit and	t rition vegetables	Cooking and Nutrition Preparing fruit and vegetables	Cooking and Nutrit Healthy and varied die	<i>ion</i> et	Cooking and Nutrition Healthy and varied diet	Cooking Celebratin	and Nutrition g culture and seasonality	Cooking and Nutrition Celebrating culture and seasonality
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Structures	<i>Structures</i> Free standing			Structures Shell Structures			Frame Structure	es uctures	
			Textiles Templates and joining techniques			Textiles 2D to 3D product Electrical Systems Simple circuits and switches			Textiles Combining different fabrics Electrical Systems Using more complex circuits and

EYFS	Y1	Y2	Y3	Y4	Y5	Y6			
	RESEARCH AND DESIGN								
Knowledge:	Build on prior knowledge and:	Build on prior knowledge and:	Build on prior knowledge and:	Build on prior knowledge and:	Build on prior knowledge and:	Build on prior knowledge and:			
Research To talk about what they can see in different products.	Research Know the different features of a card with a mechanism. Know that ideas can be 'borrowed' from other products.	Research Know the different features of toy cars and how their wheels work. Know and explore different products that have been sewn.	Research Know where to find examples of toys which use mechanisms. How toys have developed with the use of mechanisms.	Research Know that products have developed overtime and use this information to inform planning. Know that ideas from other people can be used when designing	Research Know and refer to real life examples of autometer's. Know and understand that views of the product will vary. Know that information from different sources can be used to inform designs.	Research Use market research to inform plans and ideas. Know that culture and society is considered in plans and designs.			
Design criteria	Design criteria Know how to experiment when designing	Design criteria	Design criteria Know that a design must meet a set criteria.	Design criteria Know how to produce a plan and explain the purpose of the product.	Design criteria Know and indicate the design features of their products that will appeal to intended	Design criteria Know that all aspects of a design must lead to the specific need/purpose.			

Kind **Adventurous** Persevere Independent Together

Indigeneration Description parameter	To have a go at		With support, know how to design a	Know that a product needs to look	Know and explain the key features of	users, to include functions and why it is	Know how to identify and solve design
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Build on prior knowledge and: Build on prior knowledge and: Build on prior knowledge and: To explore how toys Mechanisms Mechanisms Mechanisms work and develop Levers and sliders Wheels and axels Levers and linkages Income that mechanisms on a substription of the term only in a substription of term only in a substription	Technical Knowledge ar	nd Skills					
Indexplore now toys mechanisms mechanisms work and develop Levers and sliders Wheels and axels Longuage related to Knew that mechanisms are a subsistered are an which Knew that mechanisms are a subsistered are subsistered are an which	To ovaloro how towa	Build on prior knowledge and:	Build on prior knowledge and:	Build on prior knowledge and:		Build on prior knowledge and:	
Function and the provided to the solution of the provided to t	vork and develop	reconnisms Levers and sliders	Wheels and axels	Levers and linkages		<i>Priechanisms</i> Pulleys or gears	
anguage related to I know that mechanisms are a Know that an axie is a rod on which Know that mechanisms create	language related to	Know that mechanisms are a	Know that an axle is a rod on which	Know that mechanisms create			
moving parts. collection of moving parts that work one or more wheels can rotate, either movement in a product. Know how mechanical systems work.	moving parts.	collection of moving parts that work	one or more wheels can rotate, either	movement in a product.		Know how mechanical systems work.	
together in a machine. If reely of fixed. Know that an axle holder is the livers that are connected by pivets that are connected by		together in a machine.	freely of fixed.	Know that a linkage is a system of		Know what a pulley system is	
everyday objects.		everyday objects.	component through which an axle fits	levers that are connected by pivots.		Know how to measure, mark, cut and saw	
and rotates.			and rotates.			accurately with wood.	

	Know that a lever is something that turns on a pivot. Know that levers and sliders can be used to create a moving picture.	Know the chassis is the frame on which a vehicle is built.	Know that levers and linkage can be linear, reciprocating, rotary and oscillating. Know that a system is a set of related parts or components used to create an outcome.		Know to strengthen, reinfo 3D frame (car). Know how to use a workb safely.
	Topic specific vocabulary <i>slider, lever, pivot, slot, bridge/guide</i> <i>card, masking tape, paper fastener,</i> <i>join pull, push, up, down, straight,</i> <i>curve, forwards, backwards design,</i> <i>make, evaluate, user, purpose,</i> <i>ideas, design criteria, product,</i> <i>function</i>	Topic specific vocabulary vehicle, wheel, axle, axle holder, chassis, body, cab assembling, cutting, joining, shaping, finishing, fixed, free, moving, mechanism names of tools, equipment and materials used design, make, evaluate, purpose, user, criteria, functional	Topic specific vocabulary <i>mechanism, lever, linkage, pivot,</i> <i>slot, bridge, guide system, input,</i> <i>process, output linear, rotary,</i> <i>oscillating, reciprocating user,</i> <i>purpose, function prototype, design</i> <i>criteria, innovative, appealing,</i> <i>design brief</i>		Topic specific vocabula Pulley, drive belt, gear, ro driver, follower, ratio, tran circuit, switch, circuit diag drawings, exploded diagra system, electrical system, output design decisions, fu innovation, authentic, use specification, design brief
To explore how to join different materials. To know how to thread a needle and sew stitches.		Build on prior knowledge and: Textiles Templates and joining techniques Know how to sew a running stitch, with evenly spaced, neat stitches to join fabric Know that you can decorate fabric with stitches (embroider) Know different ways of joining fabric (gluing, safety pins, pinning) Know that a template can be made to support the making process. Topic specific vocabulary Names of existing products, joining		Build on prior knowledge and: Textiles 2D to 3D product Know how to make a template/pattern for the design Know that a prototype is a model used to test whether a design will work. Know how to do a running stitch, backward stitch, and a cross stitch. Know that a seam allowance has to be left when sewing. Topic specific vocabulary fabric, names of fabrics, fastening,	
		and finishing techniques, tools, fabrics and components template, pattern pieces, mark out, join, decorate, finish features, suitable, quality mock-up, design brief, design criteria, make, evaluate, user, purpose, function		compartment, zip, button, structure, finishing technique, strength, weakness, stiffening, templates, stitch, seam, seam allowance user, purpose, design, model, evaluate, prototype, annotated sketch, functional, innovative, investigate, label, drawing, aesthetics, function, pattern pieces	
Structures To explore how different structures can be made when using construction toys.	Structures Free standing Know how to build structures, exploring how they can be made stronger, stiffer, and more stable. Know and identify natural and man- made structures. Know that shapes and structures with wide, flat bases or legs are most stable. Know that the shape of a structure affects its strength. Topic specific vocabulary cut, fold, join, fix structure, wall, tower, framework, weak, strong, base, top, underneath, side, edge, surface, thinner, thicker, corner, point, straight, curved metal, wood, plastic circle, triangle, square, rectangle, cuboid, cube, cylinder design, make, evaluate, user, purpose, ideas, design criteria, product, function		Structures Shell Structures Know what a net is. Know what laminating is when working with layers of card. Know how to reinforce card through corrugating Know that ribbing is another way of strengthening card. Apply knowledge of computer fonts when designing the product. Topic specific vocabulary shell structure, three-dimensional (3-D) shape, net, cube, cuboid, prism, vertex, edge, face, length, width, breadth, capacity marking out, scoring, shaping, tabs, adhesives, joining, assemble, accuracy, material, stiff, strong, reduce, reuse, recycle, corrugating, ribbing, laminating font, lettering, text, graphics, decision, evaluating, design brief design criteria, innovative, prototype	Electrical Systems	Structures Frame Structures Know the different structur frames Know that creating triangle rigidity. Know that compression is of pressure on an object. Know that a frame structur make from thin component Know that 3D models can structure or a product. Topic specific vocabula frame structure, stiffen, st reinforce, triangulation, st join, temporary, permanent design specification, proto sketch, purpose, user, inn functional
				Simple circuits and switches Know how to make a simple electrical circuit. Know how to make a switch.	

orce, and stiffen a	
ench and tools	
ry	
cation, spindle, smit, axle, motor ram annotated ms mechanical input, process, unctionality, r, purpose, design	
	Ruild on prior knowledge and:
	Textiles Combining different fabrics Know the purpose of a 'mock up' Know that a 'mock up' is useful for checking proportions and scale. Know that a detailed drawing contains all information needed to make a product (but that it can be updated). Know how to do a stem stitch, satin stitch, chain stitch and a lazy daisy stitch Know that a seam allowance has to be 15mm for domestic patterns.
	Topic specific vocabulary seam, seam allowance, wadding, reinforce, right side, wrong side, hem, template, pattern pieces • name of textiles and fastenings used, pins, needles, thread, pinking shears, fastenings, iron transfer paper • design criteria, annotate, design decisions, functionality, innovation, authentic, user, purpose, evaluate, mock-up, prototype
res for building	
es provides	
a the application	
re is a structure ts. represent a	
ry rengthen, ability, shape, at design brief, type, annotated ovation, research,	
	<i>Electrical Systems</i> Using more complex circuits and switches
	Know how to make a complex electrical circuit.
	-

	Know that electricity flows through a circuit. Know how connect and disconnect the flow of electricity. Know how to work safely when working with electricity.	Know how to include a switch within the complex circuit. Know how to write instructions for the purpose of the switch. Know how connect and disconnect the flow of electricity as appropriate for the product design. Know how to create a high quality product. Know how to work safely when working with electricity.		
	Topic specific vocabularyseries circuit, fault, connection,toggle switch, push-to-make switch,push-to-break switch, battery,battery holder, bulb, bulb holder,wire, insulator, conductor, crocodileclip control, program, system, inputdevice, output device user, purpose,function, prototype, design criteria,innovative, appealing, design brief	Topic specific vocabulary series circuit, parallel circuit, names of switches and components, input device, output device, system, monitor, control, program, flowchart function, innovative, design specification, design brief, user, purpose		
Cooking and Nutrition				

Knowledge:	Build on prior knowledge and:	Build on prior knowledge and:	Build on prior knowledge and:	Build on prior knowledge and:	Build on prior knowledge and:	Build on prior knowledge and:	
Cooking and Nutrition	rition Cooking and Nutrition Preparing fruit and vegetables Know that vegetables can be peeled, cut, sliced grated or squeezed. Know what a vegetable is Know what ruit is. Know that nutrients are important to keep us healthy Know that we all have different views about how things taste. Know what makes a balanced diet and know the five food groups Know how to prepare food safely and hygienically without using a heat source Know the ingredients used in creating a salad. Know the food groups (carbohydrates, protein, dairy, fruits and vegetables, fats, and sugars). Know that food needs to be prepared in a hygienic environment. On a cycle with Y1 – to alternate between vegetable and fruit salad. Topic specific vocabulary <i>fruit and vegetable names, names of equipment and utensils</i> • sensory vocabulary e.g. soft, juicy, crunchy, sweet, sticky, smooth, sharp, crisp, sour, hard • <i>flesh, skin, seed, pip, core, slicing, peeling, cutting, squeezing, healthy diet,</i> <i>choosing, ingredients, planning, investigating tasting, arranging, popular,</i> <i>design, evaluate, criteria</i>		<i>Cooking and Nutrition</i> Healthy and varied diet	<i>Cooking and Nutrition</i> Healthy and varied diet	<i>Cooking and Nutrition</i> Celebrating culture and seasonality	<i>Cooking and Nutrition</i> Celebrating culture and seasonality	
To explore how foods taste and how they			Sandwich	Wrap	Ginger Bread Bread Roll		
might be created.			Know that the word texture is about I Know that the appearance of the food (or not). Know that preference may differ from using appropriate vocabulary. Know that processed food has been c be eaten in food preparation and cool	now the food feels in your mouth. d is important in our decision to eat it a another child. Justify preferences hanged in some way to enable them to king.	Know now to mix and combine ingredients when making savoury muffins or scones. Know how to mix fat and flour when making a yeast based product (rubbing in). Know that finishing a product is key to ensure the shape, decoration and colour are right. Know what 'kneading' is Know the difference between bread and unleavened bread		
			 Topic specific vocabulary name of products, names of equipment, utensils, techniques and ingredients texture, taste, sweet, sour, hot, spicy, appearance, smell, preference, greasy, moist, cook, fresh, savoury hygienic, edible, grown, reared, caught, frozen, tinned, processed, seasonal, harvested healthy/varied diet planning, design criteria, purpose, user, annotated sketch, sensory evaluations 		Topic specific vocabulary <i>ingredients, yeast, dough, bran, flour, wholemeal, unleavened, baking soda, spice, herbs</i> <i>fat, sugar, carbohydrate, protein, vitamins, nutrients, nutrition, healthy, varied, gluten,</i> <i>dairy, allergy, intolerance, savoury, source, seasonality utensils, combine, fold, knead,</i> <i>stir, pour, mix, rubbing in, whisk, beat, roll out, shape, sprinkle, crumble design</i> <i>specification, innovative, research, evaluate, design brief</i>		