KIDGATE PRIMARY ACADEMY

'Growing kind hearts and curious minds'

LONG TERM COVERAGE AND PROGRESSION PLANNING FOR Design and Technology

EYFS FOUNDATIONS:

The children will learn new skills, knowledge and attitudes in the seven areas of the EYFS Framework, with the key areas linking to Design and Technology being Expressive Arts and Design (exploring and using media and materials), Expressive Arts and Design (being imaginative), and Physical Development (moving and handling). Their learning and development within these areas will be nurtured and challenged in the following ways.

- Continuous provision that stimulates investigation and questioning through an enabling environment.
- Child-initiated play where children can select resources for their own learning.
- Adult modelling provides a framework for role-play and activities the children can then recreate and develop independently.
- Adult led activities which will focus on direct teaching and guided learning

Design and Technology Vocabulary: plan, make, create, build, strong, cut, attach, cook, mix, design, like, dislike

	AUTUMN COVERAGE		SPRING COVERAGE		SUMMER COVERAGE	
	Structures [&Mechanisms (Axles)]: Windmills Why do windmills go round and round?		**Textiles: Puppets How can we create a puppet show?**		**Cooking & Nutrition: Smoothies Where do fruits come from? Can they be eaten in different ways?**	
	Design	**Make**	**Design**	**Make**	**Design**	**Make**
YEAR 1	Use design criteria	Make stable structures from card, tape and glue; Turn 2D nets into 3D structures; Use axles to make a functioning turbine; Cut and assemble a supporting structure;	Use a template to create a design Know that a template can be used to ensure identical copies of a shape can be produced;	Use different joining methods (glue, pin, staple); Cut fabric neatly with scissors; Join two fabric faces together accurately; Use finishing techniques to embellish	Design smoothie packaging (drawing); Follow a design brief Know that a design brief informs what a product should have	Juice fruits to make a smoothie; Safely use knives to cut; Safely use a juicer Know how to cut using a bridge and a claw; Know why bridge and claw grips are safe
	Evaluate	**Technical Knowledge**	**Evaluate**	**Technical Knowledge**	**Evaluate**	**Technical Knowledge**
	Evaluate existing products; Test whether a structure is strong or stable, and make adjustments if not;	Know that cylinders are a strong structure; Understand that axles are used to make parts turn in a circle;	Explain likes and dislikes	Different materials need to be joined in different ways;	Taste and evaluate different fruits; Describe appearance, smell and taste	Identify fruits; Know where fruits and vegetables grow

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	Evaluate against a design criteria; Suggest points for improvement;	Know that a structure is something that has been made and put together;				
	Vocabulary: axle, bridge, design, design criteria, model, net, packaging, stable, strong, structure, template, unstable, weak		Vocabulary: decorate, design, fabric, glue, model, hand puppet, safety pin, staple, stencil, template		Vocabulary: blend, blender, chopping board, compare, cut, design, evaluate, flavour, fork, fruit, healthy, ingredients, juice, juicer, leaf, plant, recipe, root, seed, select, smoothie, stem, table knife, taste, tree, vegetable, vine	
YEAR 2	**AUTUMN COVERAGE**		**SPRING COVERAGE**		**SUMMER COVERAGE**	
	Structures: How Can We Make Baby Bear's Chair Stronger?		**Mechanisms (Axles and Wheels): Ferris Wheels** **Do wheels on work on vehicles?** *(Q to possibly be amended)*		**Mechanisms (Levers and Linkages): Moving Monster Toys** **How can I make a toy move?**	
	Design	**Make**	**Design**	**Make**	**Design**	**Make**
		Create joints and structures from paper, card and tape	Design a wheel Follow a design brief	Select materials based on properties and characteristics	Design monsters, using a design criteria	Make a monster toy using linkages; Cut and assembly components neatly
	Evaluate	**Technical Knowledge**	**Evaluate**	**Technical Knowledge**	**Evaluate**	**Technical Knowledge**
	Evaluate against a design criteria	Explain why an object is more or less stable than another; To know how shape affects strength and stability	Evaluate existing designs; Test and adapt a design	Use axles; Know how axles help wheels to move	Evaluate existing toys; Evaluate designs against a design criteria; Use peer feedback to modify designs	What are levers, linkages and pivots? Identify levers, linkages and pivots What is a mechanism? What are inputs and outputs? What are levers and linkages used for?
	Vocabulary: design criteria, man-made, natural, properties, structure, stable, shape, model, test		Vocabulary: design, design criteria, wheel, Ferris wheel, pods, axle, axle holder, frame, mechanism		Vocabulary: axle, design criteria, input, lever, linkage, mechanical, output, pivot, wheel	

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	AUTUMN COVERAGE		SPRING COVERAGE		SUMMER COVERAGE	
	Structures: Landmarks **Can we recreate famous buildings from around the world?**		**Digital World: Wearable Technology** **What makes computer aided design so great?**		**Cooking & Nutrition: Seasonal Tarts** **Why should the food we ate change with the seasons?**	
	Design	**Make**	**Design**	**Make**	**Design**	**Make**
	Draw and label using 2D shapes; Draw a landmark using a combination of 2D shapes on CAD software; Create a design brief after researching existing landmarks	Construct 3D geometric shapes using nets; Make facades from recycled materials; Know how 2D nets can be made into 3D shapes; Know that a façade is the front of a structure	Develop designs through annotated sketches; Develop design criteria in response to a design brief	Write a program that will control or monitor that will initiate a flashing LED algorigthm (using Micro:bits)	Choose ingredients based on a brief	Peel foods; Cut ingredients safely; Follow a recipe
YEAR 3	**Evaluate**	**Technical Knowledge**	**Evaluate**	**Technical Knowledge**	**Evaluate**	**Technical Knowledge**
	Evaluate own and other's work based on aesthetics and original design; Suggest improvements	Draw a landmark using a combination of 2D shapes on CAD software	Analyse and evaluate existing products; Use peer feedback to improve design	Use CAD to create a point of sale badge; Write a program that will control or monitor that will initiate a flashing LED algorigthm (using Micro:bits)	Describe texture and flavour of seasonal ingredients	Know how climate affects how food grows; Know UK seasonal foods; Describe the benefits of seasonal eating and its impact on the environment
	Vocabulary: 2D, 3D, landmarks, design brief, diagram, key features, net, scoring, shape, stable, stiff, strong, structure, tabs, combine, assemble, unique, purpose, research, inspiration, plan, solid, flat, façade, appearance, evaluate, compare, improve, adapt		Vocabulary: analogue, analyse, annotate, badge, computer-aided design (CAD), control, design criteria, develop, digital, digital revolution, digital world, display, electronic, electronic products, fastening, feature, feedback, form, function, initiate, layers, monitor, net, opinion, point of sale, product, product design, program, sense, simulator, smart technology, test, user		Vocabulary: appearance, arid, climate, complementary, country, cut, design, evaluate, export, fruit, grate, import, ingredients, Mediterranean, mock-up, mountain, peel, polar, seasonal, seasons, snip, taste, temperate, texture, tropical, vegetable, weather	

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	AUTUMN COVERAGE		SPRING COVERAGE		SUMMER COVERAGE	
	Frame Structures: Pavilions **How can we strengthen frame structures?**		**Mechanisms: Slingshot Cars** **Why are some cars faster than others?**		**Electrical Systems: Lighthouses** **How do lighthouses save lives?**	
YEAR 4	**Design**	**Make**	**Design**	**Make**	**Design**	**Make**
	Design a stable structure that is aesthetically pleasing;	Select materials to create a desired effect; Build frame structures designed to support weight; Make free-standing frame structures of different shapes and sizes; Select appropriate materials for a strong structure and cladding; Know what a frame structure is	Design a shape that reduces air resistance; Personalise a design; Know that reducing air resistance can help a car to travel faster.	Draw a net to create a structure from; Create a chassis; Measure, mark, cut and assemble with accuracy; Make a model based on a chosen design; Know how to measure with increased accuracy.	Design a torch; Create design criteria; Create success criteria;	Make a torch with a working electrical circuit and switch; Use appropriate equipment to cut and attach materials; Assemble a torch based on their design and success criteria; Know how switches work in a circuit
	Evaluate	**Technical Knowledge**	**Evaluate**	**Technical Knowledge**	**Evaluate**	**Technical Knowledge**
		Reinforce corners to strengthen a structure; Create different textural effects with materials Know that cladding is a material that is put on top of another to provide protection or to improve appearance	Evaluate the speed of the finished product; Know that products are tested before they are released so that tweaks and improvements can be made.		Evaluate existing electrical products; Test and evaluate the success of the final product;	Make a torch with a working electrical system and switch
	Vocabulary: 3D shapes, Cladding, Design criteria, Innovative, Natural, Reinforce, Structure		Vocabulary: chassis, energy, kinetic, mechanism, air resistance, design, structure, graphics, research, model, template		Vocabulary: battery, bulb, buzzer, conductor, circuit, circuit diagram, electricity, insulator, series circuit, switch, component, design, design criteria, diagram, evaluation, LED, model, shape, target audience, input, recyclable, theme, aesthetics, assemble, equipment, ingredients, packaging, properties, sketch, test	

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	AUTUMN COVERAGE		SPRING COVERAGE		SUMMER COVERAGE	
	Cooking & Nutrition: Developing a Recipe **Can I Make Dinner?**		**Electrical Systems: Doodlers** **How does evaluating help me to problem solve?**		**Mechanical Systems: Pop Up Books** **How can I make an interactive pop-up book?**	
	Design	**Make**	**Design**	**Make**	**Design**	**Make**
	Write an alternative recipe; Design a jar label using CAD software;	Work safely and hygienically when preparing food; Write an alternative recipe; Make a developed recipe;	Develop design criteria based on existing products; Know that designers often take inspiration from existing products and designs	Make a series circuit, which includes a motor; Construct a product based on the design criteria; Know how to build a series circuit;	Design a pop-up book using a mixture of structures and mechanisms; Storyboard ideas for a book;	Follow a given design brief to make a pop up book neatly and accurately; Make mechanisms and structures to create movement, including sliders, pivots, folds and levers; Use layers and spacers to hide mechanical components to make it aesthetically pleasing;
YEAR 5	**Evaluate**	**Technical Knowledge**	**Evaluate**	**Technical Knowledge**	**Evaluate**	**Technical Knowledge**
	Research existing recipes; Suggest alternative ingredients;	Explain the farm to fork process; Understand nutrition labels; Understand cross-contamination;	Evaluate existing products; Alter a product's form and function; Analyse the purpose of a product; Analyse a product's strengths and weaknesses; Determine which parts of a product affect its function; Analyse whether changes in configuration positively or negatively affect the product; Peer evaluate a set of instructions to build a product	Alter a product's form and function by 'tinkering' with its configuration; Make a functional series circuit which includes a motor;	Evaluate the work of others; Receive feedback on their own work; Suggest points for improvement;	Name and identify mechanisms (lever, pivot, slider, fold); Correctly identify the input and output;
	Vocabulary: abattoir, adaptation, balanced, beef, brand, cook, cross-contamination, cut, design, enhance, equipment, evaluate, farm, grate, hygiene, ingredients, label, measure, nutrient, nutrition, nutritional value, preference, press, process, recipe, safety		Vocabulary: circuit component, configuration, current, develop, DIY, investigate, motor, motorised, problem solve, product analysis, series circuit, stable, target user		Vocabulary: design, input, motion, mechanism, criteria, research, reinforce, model, lever, pivot, slider, fold, spacer, layer, output, structure, mechanism, movement, design, automatic pull-strip,	

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	AUTUMN COVERAGE		SPRING COVERAGE		SUMMER COVERAGE	
	Textiles: Toys **How Can I Make A Themed Stuffed Toy? (WW2 teddy for an evacuee)**		**Structures: Playgrounds** **What mechanisms can be found at the playground?**		**Digital Technology** **How can technology be used to help us to protect the planet?** (use micro:bits to develop a light-up fishing net)	
	Design	**Make**	**Design**	**Make**	**Design**	**Make**
YEAR 6	Design a stuffed toy for a specification and design criteria; Annotate designs;	Use a template when pinning panels onto fabric; Mark and cut fabric accurately; Accurately sew a strong blanket stitch, using small, neat stitches that follow the edge; Tie strong knots; Decorate, using thread and secure fastenings;	Design a playground containing a variety of different structures;	Build a range of play apparatus structures; Measure, mark and safely cut wood; Add decoration; Know how to safely use tools to cut.	Develop design criteria; Develop product ideas through annotated sketches; Consider materials based on their properties;	Make a prototype;
	Evaluate	**Technical Knowledge**	**Evaluate**	**Technical Knowledge**	**Evaluate**	**Technical Knowledge**
	Evaluate work continually as it is being created; Know that products are evaluated continuously throughout the design, make, evaluate process.	Learn different decorative stitches; Know what a template is; Know why it's important that templates are pinned onto materials securely;	Evaluate the effectiveness of a design; Improve a design based on peer evaluation; Test and adapt a design to improve it as it is being developed; Identify what makes a structure successful;	Use a range of materials for reinforcement;	Debug a computer programme; Suggest improvements to a design; Suggest improvements at each stage of the making process;	Program a micro:bit to have flashing lights; Program a micro:bit to respond to its surroundings; Consider how a product can be made more sustainable;
	Vocabulary: accurate, adapt, annotate, appendage, applique, blanket stitch, cross stitch, decorate, design criteria, detail, evaluation, fabric, fastening, knot, properties, proportional, running stitch, seam, sew, shape, stuffed toy, stuffing, target audience/customer, template, thread,		Vocabulary: apparatus, bench hook, cladding, design criteria, dowel, equipment, jelutong, landscape features, modify, plan view, playground, prototype, reinforce, tenon saw,		Vocabulary: sustainable; programme; micro:bit; prototype; annotated sketch; debug; animation; LED; control; sensors; light sensor; conditions; input; output; readings; research;	