

Landgate School Long Term Planning 2019-2021

Key Stage 2

Key stage 2 Intent:

Design Technology

Through a variety of creative and practical activities, our learners are taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. Our learners work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment].

When designing and making, learners are given opportunities to:

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
- generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

Make

- select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately
- select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities

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

Technical knowledge

- apply their understanding of how to strengthen, stiffen and reinforce more complex structures
- understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
- understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
- apply their understanding of computing to program, monitor and control their products.

Cooking and Nutrition:

As part of their work with food, our learners are 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.

When designing and making in Cooking and Nutrition, learners are given opportunities to:

- understand and apply the principles of a healthy and varied diet
- prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques
- understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.

Key Stage Opportunities:

Throughout Key Stage 2 learners will investigate, design, make and evaluate projects within the following areas:

- Structures
- Mechanisms (Including gears, pulleys, levers, linkages, cams and hydraulics)
- Electronic Systems
- Textiles
- Cooking and Nutrition

Learners will be exposed to a range of materials, contexts and skills, for example:

Materials exposure: wide range of construction tools under varying levels of supervision, hammer, glue gun, wood, plastic, recycled materials, felt, fabric, various food groups eg dairy, fruit and vegetables

Contexts explored: designing for a user other than themselves taking in to account a design brief and specific requirements, home, school, gardens, playgrounds, story links, local community and wider environment, designing for a specific purpose.

Practical skills developed: cutting using a range of tools, measuring accurately, drawing, designing, making, joining with a variety of bonds, building, investigating, CAD (computer aided design), electrical circuits, soldering, using handcraft tools (eg hammer, saw etc)

		Year A 2019-20	Year B 2020-2021	Year C 2021-2022	Year D 2022-2023
Focus 1	Key Focus:	Structures: Animal home Example of challenge/product/purpose: - Bird house, hedgehog home, bug hotel - Cat/dog kennel	Structures: Greenhouse Example of challenge/product/purpose: - To grow some plants in class, to grow some plants outside, - Recycling plastic for useful purpose	Structures: Shell Structure Example of challenge/product/purpose: -Money box, gift box, lunch box, party box	Structures: Item that floats Example of challenge/product/purpose: - Boat - For a character from a story, for a small toy/figure
	Vocabulary and Knowledge:	Tools, materials, joining, stable, strong, hand drill, hammer, glue	Building, sunlight, properties of materials, transparent, tools, materials, joining, stable, strong,	Net, 3D, open, close, box, tools, materials, joining, stable, strong, hand drill, hammer, glue gun,	Float, water, waterproof, water resistant, tools, materials, joining, stable,

	gun, nails, stiffen, reinforce, plastic, wood	hand drill, hammer, glue gun, nails, stiffen, reinforce, plastic, wood	nails, stiffen, reinforce, plastic, wood, cardboard	strong, hand drill, hammer, glue gun, nails, stiffen, reinforce, plastic, wood
Key Skills:	<p><u>Evaluation of existing products, designing, making, evaluating their finished product.</u></p> <ul style="list-style-type: none"> - cutting, measuring, joining accurately -making choices to select tools and materials - creating for a purpose 	<p><u>Evaluation of existing products, designing, making, evaluating their finished product.</u></p> <ul style="list-style-type: none"> - cutting, measuring, joining accurately -making choices to select tools and materials - creating for a purpose 	<p><u>Evaluation of existing products, designing, making, evaluating their finished product.</u></p> <ul style="list-style-type: none"> - cutting, measuring, joining accurately -making choices to select tools and materials - creating for a purpose 	<p><u>Evaluation of existing products, designing, making, evaluating their finished product.</u></p> <ul style="list-style-type: none"> - cutting, measuring, joining accurately -making choices to select tools and materials - creating for a purpose
Key Opportunities:	<ul style="list-style-type: none"> ▪ Possibly visit a pet shop to investigate real items ▪ Research existing animal homes ▪ Develop a design, record a plan using pictures/words/symbols ▪ Select from a wide range of materials and tools eg glue gun, hammer etc ▪ Draw/measure shapes, cut materials, select from a range of tools ▪ Join materials using different techniques, use appropriate finishing techniques ▪ Discuss and evaluate finished product 	<ul style="list-style-type: none"> ▪ Research existing products, investigating actual examples wherever possible. ▪ Develop a design, record a plan using pictures/words/symbols ▪ Select from a wide range of materials and tools eg glue gun, hammer etc ▪ Draw/measure shapes, cut materials, select from a range of tools ▪ Join materials using different techniques, use appropriate finishing techniques ▪ Discuss and evaluate finished product 	<ul style="list-style-type: none"> ▪ Research existing products, use ICT where appropriate ▪ Develop a design, record a plan using pictures/words/symbols ▪ Select from a wide range of materials and tools eg glue gun, hammer etc ▪ Draw/measure shapes, cut materials, select from a range of tools ▪ Join materials using different techniques, use appropriate finishing techniques ▪ Discuss and evaluate finished product 	<ul style="list-style-type: none"> ▪ Investigate different materials ▪ Research existing items that float ▪ Develop a design, record a plan using pictures/words/symbols ▪ Select from a wide range of materials and tools eg glue gun, hammer etc ▪ Draw/measure shapes, cut materials, select from a range of tools ▪ Join materials using different techniques, use appropriate finishing techniques ▪ Discuss and evaluate finished product

Focus 2	Key Focus:	Electrical System: Lighthouse Example of challenge/product/purpose: - link to a story	Electrical System: Torch Example of challenge/product/purpose: - link to science	Electrical System: Noise making game Example of challenge/product/purpose: - make a game to play	Electrical System: Light emitting toy Example of challenge/product/purpose: - light up toy - light/image projecting toy
	Vocabulary and Knowledge:	Light, structure, strong, stable electricity, circuit, wire, battery, structure, on/off, switch, handmade switch, commercial switch, latching switch, bulb, motor, conductor, crocodile clips	3D, electricity, circuit, wire, battery, structure, on/off, switch, handmade switch, commercial switch, latching switch, bulb, motor, conductor, crocodile clips	Electricity, circuit, wire, battery, structure, on/off, switch, handmade switch, commercial switch, latching switch, buzzer, conductor, crocodile clips	Electricity, circuit, wire, battery, structure, on/off, switch, handmade switch, commercial switch, latching switch, bulb, motor, buzzer, conductor, crocodile clips
	Key Skills:	<u>Evaluation of existing products, designing, making, evaluating their finished product.</u> - cutting, measuring, joining accurately -making choices to select tools and materials - creating for a purpose	<u>Evaluation of existing products, designing, making, evaluating their finished product.</u> - cutting, measuring, joining accurately -making choices to select tools and materials - creating for a purpose	<u>Evaluation of existing products, designing, making, evaluating their finished product.</u> - cutting, measuring, joining accurately -making choices to select tools and materials - creating for a purpose	<u>Evaluation of existing products, designing, making, evaluating their finished product.</u> - cutting, measuring, joining accurately -making choices to select tools and materials - creating for a purpose
	Key Opportunities:	<ul style="list-style-type: none"> ▪ Research existing products, investigating actual examples wherever possible. ▪ Design and make a simple lighthouse structure ▪ Choose method/material to make lighthouse eg cardboard, paper mache, crisp/cardboard tube ▪ make/use a simple circuit with lightbulb 	<ul style="list-style-type: none"> ▪ Using examples, research already existing products. ▪ Design and make a simple torch. ▪ Select appropriate materials to create a torch and identify your method. ▪ Make a simple electrical circuit and operate it using a switch. 	<ul style="list-style-type: none"> ▪ Discover similar products that are already available. ▪ Design and make a simple noise making game ▪ Plan the build of a noise making game, using suitable materials. ▪ Create a toy that uses a buzzer or similar in a simple electrical circuit. 	<ul style="list-style-type: none"> ▪ Research existing products ▪ Design and make a simple miniature working fairground ride ▪ Identify a clear plan to create a toy and identify materials to be used. ▪ Use an electrical circuit.

Focus 3	Key Focus:	<u>Mechanisms: Design a toy that moves on wheels</u> Example of challenge/product/purpose: - Emergency vehicle - Pull along toy - Space buggy - Car	<u>Mechanisms: Moving toys using Cams</u> Example of challenge/product/purpose: - automata moving animal - moving scene eg beach	<u>Mechanisms: Hydraulic or Pneumatic system</u> Example of challenge/product/purpose: - moving hydraulic or pneumatic head (animal, character) - theme: eg Easter egg opening	<u>Mechanisms: Fairground rides</u> Example of challenge/product/purpose: - Model fairground ride using electronic system
	Vocabulary and Knowledge:	Wheels, gears, pulleys, levers, linkages, movement, mechanism, pivot, slot, rotate, axle	Cams, gears, pulleys, levers, linkages, movement, mechanism, pivot, slot, rotate, axle	Lever, movement, mechanism, pivot, slot, rotate, axle, tube, syringe, water, air, pump	Gears, pulleys, levers, linkages, movement, mechanism, pivot, slot, rotate, axle, motor, circuit, battery, wires
	Key Skills:	<u>Evaluation of existing products, designing, making, evaluating their finished product.</u> - problem solving - cutting, measuring, joining accurately - making choices to select tools and materials - creating for a purpose	<u>Evaluation of existing products, designing, making, evaluating their finished product.</u> - problem solving - cutting, measuring, joining accurately - making choices to select tools and materials - creating for a purpose	<u>Evaluation of existing products, designing, making, evaluating their finished product.</u> - problem solving - cutting, measuring, joining accurately - making choices to select tools and materials - creating for a purpose	<u>Evaluation of existing products, designing, making, evaluating their finished product.</u> - problem solving - cutting, measuring, joining accurately - making choices to select tools and materials - creating for a purpose
	Key Opportunities:	<ul style="list-style-type: none"> ▪ Research existing products, investigating actual examples wherever possible eg toy cars, other products with moving wheels ▪ Use ICT to research ▪ Design and make a simple moving vehicle ▪ Choose method/material to make their vehicle 	<ul style="list-style-type: none"> ▪ Research existing products, investigating actual examples wherever possible eg other products with cams ▪ Use ICT to research ▪ Design and make a simple moving toy ▪ Choose method/material to make their toy 	<ul style="list-style-type: none"> ▪ Research existing products, investigating actual examples wherever possible eg other hydraulic/ pneumatic systems ▪ Use ICT to research ▪ Design and make a simple hydraulic or pneumatic system 	<ul style="list-style-type: none"> ▪ Research existing products, investigating actual examples wherever possible eg toy cars, other products with moving wheels ▪ Use ICT to research ▪ Design and make a simple moving model fairground ride

	<ul style="list-style-type: none"> Connect join parts to make their vehicle 	<ul style="list-style-type: none"> Connect join parts to make their cars toy 	<ul style="list-style-type: none"> Choose method/material to make hydraulic or pneumatic system Connect join parts to make their hydraulic or pneumatic system 	<ul style="list-style-type: none"> Choose method/material to make their model fairground ride Connect join parts to make their model fairground ride
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Focus 4	Key Focus:	<u>Textiles – Felting Process</u> Example of challenge/product/purpose: -Felt landscape -Use felt to make a seasonal decoration eg mother's day, Easter	<u>Textiles – Pencil Case</u> Example of challenge/product/purpose: Enterprise challenge to design pencil case to sell, pencil case for their friend/themselves	<u>Textiles – Soft toy 3D</u> Example of challenge/product/purpose: -link to a text -make a monster, alien - animal eg snake	<u>Textiles – Bag</u> Example of challenge/product/purpose: -book bag -toy bag - sports bag
	Vocabulary and Knowledge:	Textile, moisture, heat, rubbing, material, sew, seam, running stitch, over sewing, blanket stitch weaving, pattern, fastening, zip,	Fastening, zip, button, open, close, textile, material, sew, seam, running stitch, over sewing, blanket stitch weaving, pattern	3D, textile, material, sew, seam, running stitch, over sewing, blanket stitch weaving, pattern, fastening, zip,	Textile, material, sew, seam, running stitch, over sewing, blanket stitch weaving, pattern, fastening, zip,
	Key Skills:	<u>Evaluation of existing products, designing, making, evaluating their finished product.</u> - Use moisture and rubbing to complete felting process - Use different sewing /weaving techniques -Creating patterns -Decorate textiles appropriately	<u>Evaluation of existing products, designing, making, evaluating their finished product.</u> -Use different sewing /weaving/joining techniques - measuring and cutting materials - Creating patterns -Decorating textiles appropriately - Create a 3D pencil case	<u>Evaluation of existing products, designing, making, evaluating their finished product.</u> -Use different sewing/joining techniques - measuring and cutting materials - Creating patterns -Decorating textiles appropriately - Create 3D toy	<u>Evaluation of existing products, designing, making, evaluating their finished product.</u> -Use different sewing /weaving/joining techniques - measuring and cutting materials - Creating patterns -Decorating textiles appropriately - Create 3D products

	Key Opportunities:	<ul style="list-style-type: none"> ▪ Engage in the different stages of the felting process ▪ Practise a range of stitching techniques ▪ Investigate a range of fabrics ▪ Use appropriate decoration techniques 	<ul style="list-style-type: none"> ▪ Research existing pencil cases ▪ Practise a range of stitching techniques ▪ Investigate a range of fabrics ▪ Sew on button or fastener and make loops ▪ Use appropriate decoration techniques 	<ul style="list-style-type: none"> ▪ Research existing soft toys ▪ Practise a range of stitching techniques ▪ Investigate a range of fabrics ▪ Sew on button or fastener and make loops ▪ Use appropriate decoration techniques 	<ul style="list-style-type: none"> ▪ Research existing products, investigating actual examples wherever possible. ▪ Practise a range of stitching techniques ▪ Investigate a range of fabrics ▪ Sew on button or fastener and make loops ▪ Use appropriate decoration techniques
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Focus 5	Key Focus:	<u>C&N – Indian food</u> Example of challenge/product/purpose: -Samosas, rice, simple curry, naan bread	<u>C&N – Chinese food</u> Example of challenge/product/purpose: - spring rolls, egg fried rice etc. Possibly link to Chinese new year.	<u>C&N – Caribbean food</u> Example of challenge/product/purpose: - rice and beans, chicken, tropical fruits.	<u>C&N – British food</u> Example of challenge/product/purpose: - Scone, roast meal etc - Possibly look at specific foods from around UK.
	Vocabulary and Knowledge:	Spice, hygiene, cut, chop, cook, boil, fruit, vegetables, meat, fish, dairy, ingredients, equipment, hot, sweet	Hygiene, cut, chop, cook, boil, fruit, vegetables, meat, fish, dairy, ingredients, equipment, hot, spicy, sweet	Hygiene, cut, chop, cook, boil, fruit, vegetables, meat, fish, dairy, ingredients, equipment, hot, spicy, sweet	Hygiene, cut, chop, cook, boil, fruit, vegetables, meat, fish, dairy, ingredients, equipment, hot, spicy, sweet
	Key Skills:	<u>Evaluation of existing products, designing, making, evaluating their finished product.</u> -preparing food hygienically - Safely using a variety of utensils to chop, cut, grate, mix, peel, slice	<u>Evaluation of existing products, designing, making, evaluating their finished product.</u> -preparing food hygienically - Safely using a variety of utensils to chop, cut, grate, mix, peel, slice	<u>Evaluation of existing products, designing, making, evaluating their finished product.</u> -preparing food hygienically - Safely using a variety of utensils to chop, cut, grate, mix, peel, slice	<u>Evaluation of existing products, designing, making, evaluating their finished product.</u> -preparing food hygienically - Safely using a variety of utensils to chop, cut, grate, mix, peel, slice

		-Using kitchen apparatus safely to cook/heat food eg microwave, cooker, blender -measure ingredients and follow simple recipes -understand the principles of a healthy and varied diet	-Using kitchen apparatus safely to cook/heat food eg microwave, cooker, blender -measure ingredients and follow simple recipes -understand the principles of a healthy and varied diet	-Using kitchen apparatus safely to cook/heat food eg microwave, cooker, blender -measure ingredients and follow simple recipes -understand the principles of a healthy and varied diet	-Using kitchen apparatus safely to cook/heat food eg microwave, cooker, blender -measure ingredients and follow simple recipes -understand the principles of a healthy and varied diet
	Key Opportunities:	<ul style="list-style-type: none"> ▪ Research and taste Indian foods ▪ Select and use a range of utensils ▪ Use a range of techniques as appropriate to prepare ingredients hygienically ▪ To investigate and understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed <p>Possible links to geography, RE and music</p>	<ul style="list-style-type: none"> ▪ Taste and Research Chinese foods ▪ Select and use a range of utensils ▪ Use a range of techniques as appropriate to prepare ingredients hygienically ▪ To investigate and understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed <p>Possible links to geography, RE and music</p>	<ul style="list-style-type: none"> ▪ Taste a range of Caribbean foods ▪ Select and use a range of utensils ▪ Use a range of techniques as appropriate to prepare ingredients hygienically ▪ To investigate and understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed <p>Possible links to geography, RE and music</p>	<ul style="list-style-type: none"> ▪ Research existing products, tasting foods. ▪ Select and use a range of utensils ▪ Use a range of techniques as appropriate to prepare ingredients hygienically ▪ To investigate and understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed <p>Possible links to geography, RE and music</p>

Focus 6	Key Focus:	<u>C&N – Healthy pasta meal</u> Example of challenge/product/purpose: - meal for a specific person eg a footballer	<u>C&N – Pie</u> Example of challenge/product/purpose: - Link to a season/time of year	<u>C&N – Soup</u> Example of challenge/product/purpose: -Healthy soup for in schools - Winter soup	<u>C&N – Baking</u> Example of challenge/product/purpose: - Bread, cake, biscuit - For a bake sale to raise money, special event eg mother's day
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Vocabulary and Knowledge:	Boil, healthy, hygiene, cut, chop, cook, boil, fruit, vegetables, meat, fish, dairy, ingredients, equipment, hot, spicy, sweet	Oven, heat, cook, hygiene, cut, chop, cook, boil, fruit, vegetables, meat, fish, dairy, ingredients, equipment, hot, spicy, sweet	Hygiene, cut, chop, cook, boil, fruit, vegetables, meat, fish, dairy, ingredients, equipment, hot, spicy, sweet	Bake, hygiene, cut, chop, cook, boil, dairy, ingredients, equipment, hot, spicy, sweet
Key Skills:	<p><u>Evaluation of existing products, designing, making, evaluating their finished product.</u></p> <p>-preparing food hygienically - Safely using a variety of utensils to chop, cut, grate, mix, peel, slice -Using kitchen apparatus safely to cook/heat food eg microwave, cooker, blender -measure ingredients and follow simple recipes -understand the principles of a healthy and varied diet</p>	<p><u>Evaluation of existing products, designing, making, evaluating their finished product.</u></p> <p>-preparing food hygienically - Safely using a variety of utensils to chop, cut, grate, mix, peel, slice -Using kitchen apparatus safely to cook/heat food eg microwave, cooker, blender -measure ingredients and follow simple recipes -understand the principles of a healthy and varied diet</p>	<p><u>Evaluation of existing products, designing, making, evaluating their finished product.</u></p> <p>-preparing food hygienically - Safely using a variety of utensils to chop, cut, grate, mix, peel, slice -Using kitchen apparatus safely to cook/heat food eg microwave, cooker, blender -measure ingredients and follow simple recipes -understand the principles of a healthy and varied diet</p>	<p><u>Evaluation of existing products, designing, making, evaluating their finished product.</u></p> <p>-preparing food hygienically - Safely using a variety of utensils to chop, cut, grate, mix, peel, slice -Using kitchen apparatus safely to cook/heat food eg microwave, cooker, blender -measure ingredients and follow simple recipes -understand the principles of a healthy and varied diet</p>
Key Opportunities:	<ul style="list-style-type: none"> ▪ Research different food groups and their health properties ▪ Select and use a range of utensils ▪ Use a range of techniques as appropriate to prepare ingredients hygienically ▪ To investigate and understand seasonality, and know where and how a variety of ingredients are 	<ul style="list-style-type: none"> ▪ Taste and research existing pies ▪ Possibly visit a local bakers/pie shop ▪ Select and use a range of utensils ▪ Use a range of techniques as appropriate to prepare ingredients hygienically ▪ To investigate and understand seasonality, and know where and how a variety of ingredients are 	<ul style="list-style-type: none"> ▪ Research different food groups and health properties ▪ Select and use a range of utensils ▪ Use a range of techniques as appropriate to prepare ingredients hygienically ▪ To investigate and understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed 	<ul style="list-style-type: none"> ▪ Research existing products, tasting foods. ▪ Select and use a range of utensils ▪ Use a range of techniques as appropriate to prepare ingredients hygienically ▪ To investigate and understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed

		grown, reared, caught and processed	grown, reared, caught and processed		
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