

DESIGN AND TECHNOLOGY

LEGAL FRAMEWORK

The Expressive Arts and Design section of the Statutory Framework for the Early Years Foundation Stage (2017) and the National Curriculum Design and Technology Programmes of Study (2014) form the roots of Langtoft Primary School's DT curriculum. From this national documentation, Langtoft Primary School's DT curriculum has been devised, developed and personalised to our school community, having evolved from our values, vision, and mission statement.

Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.

Our design and technology curriculum is underpinned by the national curriculum's aims to ensure that all pupils:

- develop the creative, technical and practical expertise needed 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.

OUR INTENT FOR DESIGN AND TECHNOLOGY

Design technology prepares children to take part in the development of tomorrow's rapidly changing world. Creative thinking encourages children to make positive changes to their quality of life. The subject encourages children to become autonomous and creative problem-solvers, both as individuals and as part of a team. It enables them to identify needs and opportunities and to respond by developing ideas, and eventually making products and systems. Through the study of design and technology, they combine practical skills with an understanding of aesthetic, social and environmental issues, as well as of functions and industrial practices. This allows them to reflect on and evaluate present and past design and

technology; its uses and its impacts. Design and technology helps all children to become discriminating and informed consumers and potential innovators.

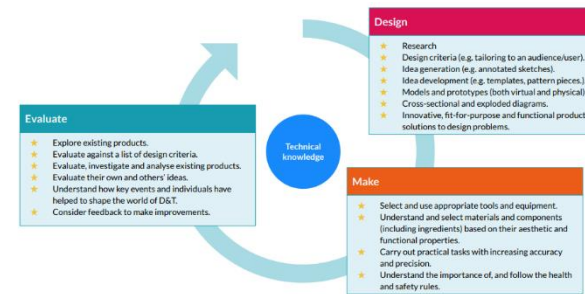
At Langtoft Primary School we aim for all children to:

- Be imaginative, creative and **ambitious** thinkers;
- Through spoken and written form, develop honest and **confident** analytical skills regarding their thoughts and preferences when designing, making and evaluating;
- Be able to explain how things work, and to draw and model their ideas;
- Know how to and be **confident** in selecting appropriate tools and techniques for making a product, whilst following safe procedures;
- Have a developed knowledge, understanding and **consideration** of technological processes and products, manufacture and their contribution to society;
- Approach design technology with positivity, showing joy, pride and satisfaction through all stages of the process;
- See meaningful connection between design technology, other subjects and the wider world;
- Be **independently** creative, yet value and **respect** collaborative teamwork (**cooperation**) to reach a purpose;
- Have the skills to analyse problems; innovate new ideas and generate suitable solutions;
- Be **resilient** when facing challenges and adaptable in order to overcome them;
- Be reflective when evaluating existing products, as well as their own work.

Our DT curriculum is divided into five concepts. These concepts are the 'big ideas' in DT and travel through the curriculum, being built upon, progressively, year upon year as our children move through the school.

The concepts are as follows:

- Design
- Make
- Evaluate
- Technical Knowledge
- Cooking and nutrition



Cooking and nutrition* has a separate section in the D&T national curriculum, with additional focus on specific principles, skills and techniques in food, including where food comes from, diet and seasonality. Food units still follow the design process summarised above, for example by tasking the pupils to develop recipes for a specific set of requirements (design criteria) and to suggest methods of packaging the food product including the nutritional information.

These are taught through key areas of cooking and nutrition, mechanisms/mechanical systems, structures and textiles (KS1 and Lower KS2) and electrical systems and digital world (Lower KS2 only).

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	Structures	Mechanisms	Textiles	Electrical systems	Digital world	Cooking and nutrition
KS1	Build structures such as windmills and chairs, exploring how they can be made stronger, stiffer and more stable. Recognise areas of weakness through trial and error.	Introduce and explore simple mechanisms, such as sliders, wheels and axles in their designs. Recognise where mechanisms such as these exist in toys and other familiar products.	Explore different methods of joining fabrics and experiment to determine the pros and cons of each technique.	<p>KS2 only* Create functional electrical products that use series circuits, incorporating different components such as bulbs, LEDs, switches, buzzers and motors.</p> <p>Consider how the materials used in these products can:</p>	<p>KS2 only* Learn how to develop an electronic product with processing capabilities.</p> <p>Apply Computing principles to program functions within a product including to control and monitor it.</p>	<p>Learn about the basic rules of a healthy and varied diet to create dishes.</p> <p>Understand where food comes from, for example plants and animals.</p>
KS2	Continue to develop KS1 exploration skills, through more complex builds such as pavilion and bridge designs. Understand material selection and learn methods to reinforce structures.	<p>Mechanical systems</p> <p>Extend pupils understanding of individual mechanisms, to form part of a functional system, for example: Automatas, that use a combination of cams, followers, axles/shaft, cranks and toppers.</p>	<p>Understand that fabric can be layered for effect, recognising the appearance and technique for different stitch and fastening types, including their:</p> <ul style="list-style-type: none"> • Strength. • Appropriate use. • Design. 	<ul style="list-style-type: none"> • Protect the circuitry. • Reflect light. • Conduct electricity. • Insulate. 	<p>Understand how the history and evolution of product design lead to the on-going Digital revolution and the impact it is having in the world today.</p>	<p>Understand and apply the principles of a healthy and varied diet to prepare and cook a variety of dishes using a range of cooking techniques and methods.</p> <p>Understand what is meant by seasonal foods.</p> <p>Know where and how ingredients are sourced.</p>

DESIGN AND TECHNOLOGY SCHOOL OVERVIEW

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
T1	Food: Soup Product: Pumpkin Soup	Structures: Constructing a windmill Product: a bridge for the three Billy Goats Gruff					
T2	Seasonal projects Product: Christmas Santa Sliding Chimney Picture		Structures: Design a chair Product: a model that supports a teddy... for Father Christmas	Textiles: Egyptian collars Product: an Egyptian collar	Textiles: Fastenings Product: a book sleeve Food: Adapting a recipe Product: a biscuit within a given budget	Electrical systems: Doodlers Product: a functional series circuit, incorporating a motor	Food: celebrating culture and seasonality Product: a three-course meal
T3			Food: A balanced diet Product: a healthy wrap based on a food combination which works well together Mechanical systems: Making a moving monster Product: Making a moving monster for a specific audience (dragon)	Mechanical systems: Pneumatic toys Product: a toy which uses a pneumatic system	Electrical systems: Torches Product: a torch with a working electrical circuit and switch Mechanical systems: Making a slingshot car Product: a model using a shape that reduces air resistance	Mechanical systems: Making a pop-up book Product: a pop-up book which uses a mixture of structures and mechanisms	Digital world: Navigating the World Product: a program that displays an arrow to indicate cardinal compass directions with an 'On start' loading screen
T4	Workshop: Junk modelling Product: Evil Pea Trap for Supertato	Food – Fruit and Vegetables Product: fruit salad		Food: Eating seasonally Product: a healthy and nutritious recipe for a savoury tart using seasonal ingredients		Structures: Bridges Product: a stable structure that is able to support weight (focus on Ironbridge)	Mechanical systems: Automata toys Product: an automata toy based on a choice of cam to create a desired movement
T5		Textiles – Puppets Product: a hand puppet	Textiles: Pouches Product: a pouch	Structures: Constructing a castle Product: a castle with key features	Structures: Pavilions Product: a pavilion that is strong, stable and aesthetically pleasing	Food: What could be healthier? Product: bolognese: adapting a traditional recipe	Electrical systems: Steady hand game Product: a steady hand game
T6	Seasonal projects Product: a weaved spider web (adapted)	Mechanisms – Making a moving storybook	Mechanisms: fairground wheel	Digital world: Electronic charm Product: a written program that initiates a		Digital world: Monitoring devices Product: a program that monitors the ambient	Structures: playgrounds Product: a range of model play apparatus structures

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	from Spring Flower threading planning) Structures: Boats Product: A boat that floats	Product: a moving animal picture for a given audience	Product: a stable structure with a rotating wheel	flashing LED panel, or another pattern, on the Micro:bit when a button is pressed		temperature and alerts someone when the temperature moves from a specified range	
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LANGTOFT PRIMARY SCHOOL PROGRESSION OF SKILLS

STRUCTURES

		EYFS/Y1	Y2	Y3	Y4	Y5	Y6
SKILLS	Design	<ul style="list-style-type: none"> Learning the importance of a clear design criteria Including individual preferences and requirements in a design 	<ul style="list-style-type: none"> Generating and communicating ideas using sketching and modelling. 	<ul style="list-style-type: none"> Designing a castle with key features to appeal to a specific person/purpose. Drawing and labelling a castle design using 2D shapes, labelling: -the 3D shapes that will create the features - materials needed and colours. Designing and/or decorating a castle tower on CAD software. 	<ul style="list-style-type: none"> Designing a stable pavilion structure that is aesthetically pleasing and selecting materials to create a desired effect. Building frame structures designed to support weight. 	<ul style="list-style-type: none"> Designing a stable structure that is able to support weight. Creating a frame structure with a focus on triangulation. 	<ul style="list-style-type: none"> Designing a playground featuring a variety of different structures, giving careful consideration to how the structures will be used, considering effective and ineffective designs.
	Make	<ul style="list-style-type: none"> Making stable structures from card, tape and glue Learning how to turn 2D nets into 3D structures Following instructions to cut and assemble the supporting structure of a windmill Making functioning turbines and axles which are assembled into a main supporting structure 	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> Constructing a range of 3D geometric shapes using nets. Creating special features for individual designs. Making facades from a range of recycled materials. 	<ul style="list-style-type: none"> Creating a range of different shaped frame structures. Making a variety of free-standing frame structures of different shapes and sizes. Selecting appropriate materials to build a strong structure and cladding. Reinforcing corners to strengthen a structure. Creating a design in 	<ul style="list-style-type: none"> Making a range of different shaped beam bridges. Using triangles to create truss bridges that span a given distance and support a load. Building a wooden bridge structure. Independently measuring and marking wood accurately. 	<ul style="list-style-type: none"> Building a range of play apparatus structures drawing upon new and prior knowledge of structures. Measuring, marking and cutting wood to create a range of structures. Using a range of materials to reinforce and add decoration to structures

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					<p>accordance with a plan.</p> <ul style="list-style-type: none"> • Learning to create different textural effects with materials. 	<ul style="list-style-type: none"> • Selecting appropriate tools and equipment for particular tasks. • Using the correct techniques to saws safely. • Identifying where a structure needs reinforcement and using card corners for support. • Explaining why selecting appropriating materials is an important part of the design process. • Understanding basic wood functional properties. 	
	Evaluate		<ul style="list-style-type: none"> • Testing the strength of own structure. • Identifying the weakest part of a structure. • Evaluating the strength, stiffness and stability of own structure 	<ul style="list-style-type: none"> • Constructing a range of 3D geometric shapes using nets • Creating special features for individual designs. • Making facades from a range of recycled materials. 	<ul style="list-style-type: none"> • Evaluating structures made by the class. • Describing what characteristics of a design and construction made it the most effective. • Considering effective and ineffective designs. 	<ul style="list-style-type: none"> • Adapting and improving own bridge structure by identifying points of weakness and reinforcing them as necessary. • Suggesting points for improvements for own bridges and those designed by others. 	<ul style="list-style-type: none"> • Improving a design plan based on peer evaluation. • Testing and adapting a design to improve it as it is developed. • Identifying what makes a successful structure
KNOWLEDGE	Technical	<ul style="list-style-type: none"> • To understand that the shape of materials can be changed to improve the strength and stiffness of structures. • To understand that cylinders are a strong type of structure (e.g. the main shape used for windmills and lighthouses). • To understand that axles are used in structures and mechanisms to make parts turn in a circle. • To begin to understand that different structures are used for different purposes. • To know that a structure is 	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • To understand that wide and flat based objects are more stable. • To understand the importance of strength and stiffness in structures. 	<ul style="list-style-type: none"> • To understand what a frame structure is. • To know that a 'free-standing' structure is one which can stand on its own. 	<ul style="list-style-type: none"> • To understand some different ways to reinforce structures. • To understand how triangles can be used to reinforce bridges. • To know that properties are words that describe the form and function of materials. • To understand why material selection is important based on properties. • To understand the material (functional and aesthetic) properties of wood. 	<ul style="list-style-type: none"> • To know that structures can be strengthened by manipulating materials and shapes.

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		something that has been made and put together.					
	Additional	<ul style="list-style-type: none"> • To know that a client is the person I am designing for. • To know that design criteria is a list of points to ensure the product meets the clients needs and wants. • To know that a windmill harnesses the power of wind for a purpose like grinding grain, pumping water or generating electricity. • To know that windmill turbines use wind to turn and make the machines inside work. • To know that a windmill is a structure with sails that are moved by the wind. • To know the three main parts of a windmill are the turbine, axle and structure. 	<ul style="list-style-type: none"> • To know the following features of a castle: flags, towers, battlements, turrets, curtain walls, moat, drawbridge and gatehouse - and their purpose. • To know that a façade is the front of a structure. • To understand that a castle needed to be strong and stable to withstand enemy attack. • To know that a paper net is a flat 2D shape that can become a 3D shape once assembled. • To know that a design specification is a list of success criteria for a product. 	<ul style="list-style-type: none"> • To know that a pavilion is a decorative building or structure for leisure activities. • To know that cladding can be applied to structures for different effects. • To know that aesthetics are how a product looks. • To know that a product's function means its purpose. • To understand that the target audience means the person or group of people a product is designed for. • To know that architects consider light, shadow and patterns when designing. 	<ul style="list-style-type: none"> • To understand the difference between arch, beam, truss and suspension bridges. • To understand how to carry and use a saw safely. 	<ul style="list-style-type: none"> • To understand what a 'footprint plan' is. • To understand that in the real world, design, can impact users in positive and negative ways. • To know that a prototype is a cheap model to test a design idea. 	



**LANGTOFT PRIMARY SCHOOL
PROGRESSION OF SKILLS**

MECHANISMS / MECHANICAL STRUCTURES

		EYFS/Y1	Y2	Y3	Y4	Y5	Y6
SKILLS	Design	<ul style="list-style-type: none"> Explaining how to adapt mechanisms, using bridges or guides to control the movement. Designing a moving story book for a given audience. 	<ul style="list-style-type: none"> Selecting a suitable linkage system to produce the desired motion. Designing a wheel. Creating a class design criteria for a moving monster. Designing a moving monster for a specific audience in accordance with a design criteria. 	<ul style="list-style-type: none"> Designing a toy which uses a pneumatic system. Developing design criteria from a design brief. Generating ideas using thumbnail sketches and exploded diagrams. Learning that different types of drawings are used in design to explain ideas clearly. 	<ul style="list-style-type: none"> Designing a shape that reduces air resistance. Drawing a net to create a structure from. Choosing shapes that increase or decrease speed as a result of air resistance. Personalising a design. 	<ul style="list-style-type: none"> Designing a pop-up book which uses a mixture of structures and mechanisms. Naming each mechanism, input and output accurately. Storyboarding ideas for a book. 	<ul style="list-style-type: none"> Experimenting with a range of cams, creating a design for an automata toy based on a choice of cam to create a desired movement. Understanding how linkages change the direction of a force. Making things move at the same time. Understanding and drawing cross-sectional diagrams to show the inner-workings of my design.
	Make	<ul style="list-style-type: none"> Following a design to create moving models that use levers and sliders. 	<ul style="list-style-type: none"> Selecting materials according to their characteristics. Following a design brief. Making linkages using card for levers and split pins for pivots. Experimenting with linkages adjusting the widths, lengths and thicknesses of card used. Cutting and assembling components neatly. 	<ul style="list-style-type: none"> Creating a pneumatic system to create a desired motion. Building secure housing for a pneumatic system. Using syringes and balloons to create different types of pneumatic systems to make a functional and appealing pneumatic toy. Selecting materials due to their functional and aesthetic characteristics. Manipulating materials to create different effects by cutting, creasing, folding and weaving. 	<ul style="list-style-type: none"> Measuring, marking, cutting and assembling with increasing accuracy. Making a model based on a chosen design. 	<ul style="list-style-type: none"> Following a design brief to make a pop up book, neatly and with focus on accuracy. Making mechanisms and/or structures using sliders, pivots and folds to produce movement. Using layers and spacers to hide the workings of mechanical parts for an aesthetically pleasing result. 	<ul style="list-style-type: none"> Measuring, marking and checking the accuracy of the jelutong and dowel pieces required. Measuring, marking and cutting components accurately using a ruler and scissors. Assembling components accurately to make a stable frame. Understanding that for the frame to function effectively the components must be cut accurately and the joints of the frame secured at right angles. Selecting appropriate materials based on the materials being joined and



							the speed at which the glue needs to dry/set.
	Evaluate	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • Evaluating different designs. • Testing and adapting a design. • Evaluating own designs against design criteria. • Using peer feedback to modify a final design. 	<ul style="list-style-type: none"> • Using the views of others to improve designs. • Testing and modifying the outcome, suggesting improvements. • Understanding the purpose of exploded-diagrams through the eyes of a designer and their client. 	<ul style="list-style-type: none"> • Evaluating the speed of a final product based on: the effect of shape on speed and the accuracy of workmanship on performance. 	N/A	<ul style="list-style-type: none"> • Evaluating the work of others and receiving feedback on own work. • Applying points of improvement to their toys. • Describing changes they would make/do if they were to do the project again.
KNOWLEDGE	Technical	<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 bridges and guides are bits of card that purposefully restrict the movement of the slider. 	<ul style="list-style-type: none"> • To know that different materials have different properties and are therefore suitable for different uses. • 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 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"> • To understand how pneumatic systems work. • To understand that pneumatic systems can be used as part of a mechanism. • To know that pneumatic systems operate by drawing in, releasing and compressing air. 	<ul style="list-style-type: none"> • To know that air resistance is the level of drag on an object as it is forced through the air. • To understand that the shape of a moving object will affect how it moves due to air resistance. 	<ul style="list-style-type: none"> • To know that mechanisms control movement. • To understand that mechanisms can be used to change one kind of motion into another. • To understand how to use sliders, pivots and folds to create paper-based mechanisms. 	<ul style="list-style-type: none"> • To understand that the mechanism in an automata uses a system of cams, axles and followers. • To understand that different shaped cams produce different outputs.
	Additional	<ul style="list-style-type: none"> • To know that in Design and technology we call a plan a 'design'. 	<ul style="list-style-type: none"> • To know the features of a ferris wheel include the wheel, frame, pods, a base an axle and an axle holder. 	<ul style="list-style-type: none"> • To understand how sketches, drawings and diagrams can be used to communicate design ideas. 	<ul style="list-style-type: none"> • To know that aesthetics means how an object or product looks in design and technology. 	<ul style="list-style-type: none"> • To know that a design brief is a description of what I am going to design and make. 	<ul style="list-style-type: none"> • To know that an automata is a hand powered mechanical toy.



			<ul style="list-style-type: none"> • To know that it is important to test my design as I go along so that I can solve any problems that may occur. • To know some real-life objects that contain mechanisms. 	<ul style="list-style-type: none"> • To know that exploded-diagrams are used to show how different parts of a product fit together. • To know that thumbnail sketches are small drawings to get ideas down on paper quickly. 	<ul style="list-style-type: none"> • To know that a template is a stencil you can use to help you draw the same shape accurately. • To know that a birds-eye view means a view from a high angle (as if a bird in flight). • To know that graphics are images which are designed to explain or advertise something. • To know that it is important to assess and evaluate design ideas and models against a list of design criteria. 	<ul style="list-style-type: none"> • To know that designers often want to hide mechanisms to make a product more aesthetically pleasing. 	<ul style="list-style-type: none"> • To know that a cross-sectional diagram shows the inner workings of a product. • To understand how to use a bench hook and saw safely. • To know that a set square can be used to help mark 90° angles.
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**LANGTOFT PRIMARY SCHOOL
PROGRESSION OF SKILLS**

ELECTRICAL SYSTEMS

		EYFS/Y1	Y2	Y3	Y4	Y5	Y6
SKILLS	Design				<ul style="list-style-type: none"> • Designing a torch, giving consideration to the target audience and creating both design and success criteria focusing on features of individual design ideas. 	<ul style="list-style-type: none"> • Identifying factors that could be changed on existing products and explaining how these would alter the form and function of the product. • Developing design criteria based on findings from investigating existing products. • Developing design criteria that clarifies the target user. 	<ul style="list-style-type: none"> • Designing a steady hand game - identifying and naming the components required. • Drawing a design from three different perspectives. • Generating ideas through sketching and discussion. • Modelling ideas through prototypes.
	Make				<ul style="list-style-type: none"> • Making a torch with a working electrical circuit and switch. • Using appropriate equipment to cut and attach materials. • Assembling a torch according to the design and success criteria. 	<ul style="list-style-type: none"> • Altering a product's form and function by tinkering with its configuration. • Making a functional series circuit, incorporating a motor. • Constructing a product with consideration for the design criteria. 	<ul style="list-style-type: none"> • Constructing a stable base for a game. • Accurately cutting, folding and assembling a net. • Decorating the base of the game to a high quality finish. • Making and testing a circuit. • Incorporating a circuit into a base.
	Evaluate				<ul style="list-style-type: none"> • Evaluating electrical products. • Testing and evaluating the success of a final product. 	<ul style="list-style-type: none"> • Carry out a product analysis to look at the purpose of a product along with its strengths and weaknesses. 	<ul style="list-style-type: none"> • Testing own and others finished games, identifying what went well and making suggestions for improvement.

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						<ul style="list-style-type: none"> • Determining which parts of a product affect its function and which parts affect its form. • Analysing whether changes in configuration positively or negatively affect an existing product. 	
KNOWLEDGE	Technical				<ul style="list-style-type: none"> • To know that an electrical circuit must be complete for electricity to flow. • To know that a switch can be used to complete and break an electrical circuit. 	<ul style="list-style-type: none"> • To know that series circuits only have one direction for the electricity to flow. • To know when there is a break in a series circuit, all components turn off. • To know that an electric motor converts electrical energy into rotational movement, causing the motor's axle to spin. • To know a motorised product is one which uses a motor to function. 	<ul style="list-style-type: none"> • To know that batteries contain acid, which can be dangerous if they leak. • To know the names of the components in a basic series circuit, including a buzzer.
	Additional				<ul style="list-style-type: none"> • To know the features of a torch: case, contacts, batteries, switch, reflector, lamp, lens. • To know facts from the history and invention of the electric light bulb(s) - by Sir Joseph Swan and Thomas Edison. 	<ul style="list-style-type: none"> • To know that product analysis is critiquing the strengths and weaknesses of a product. • To know that 'configuration' means how the parts of a product are arranged. 	<ul style="list-style-type: none"> • To understand the diagram perspectives 'top view', 'side view' and 'back'.

**LANGTOFT PRIMARY SCHOOL
PROGRESSION OF SKILLS**

COOKING AND NUTRITION

		EYFS/Y1	Y2	Y3	Y4	Y5	Y6
SKILLS	Design	<ul style="list-style-type: none"> • Designing smoothie carton packaging by-hand or on ICT software. 	Designing a healthy wrap based on a food combination which works well together.	<ul style="list-style-type: none"> • Creating a healthy and nutritious recipe for a savoury tart using seasonal ingredients, considering the taste, texture, smell and appearance of the dish. 	<ul style="list-style-type: none"> • Designing a biscuit within a given budget, drawing upon previous taste testing judgements. 	<ul style="list-style-type: none"> • Adapting a traditional recipe, understanding that the nutritional value of a recipe alters if you remove, substitute or add additional ingredients. • Writing an amended method for a recipe to incorporate the relevant changes to ingredients. • Designing appealing packaging to reflect a recipe. 	<ul style="list-style-type: none"> • Writing a recipe, explaining the key steps, method and ingredients. • Including facts and drawings from research undertaken.
	Make	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • Slicing food safely using the bridge or claw grip. • Constructing a wrap that meets a design brief. 	<ul style="list-style-type: none"> • Knowing how to prepare themselves and a work space to cook safely in, learning the basic rules to avoid food contamination. • Following the instructions within a recipe. 	<ul style="list-style-type: none"> • Following a baking recipe, from start to finish, including the preparation of ingredients. • Cooking safely, following basic hygiene rules. • Adapting a recipe to improve it or change it to meet new criteria (e.g. from savoury to sweet). 	<ul style="list-style-type: none"> • Cutting and preparing vegetables safely. • Using equipment safely, including knives, hot pans and hobs. • Knowing how to avoid cross-contamination. • Following a step by step method carefully to make a recipe. 	<ul style="list-style-type: none"> • Following a recipe, including using the correct quantities of each ingredient. • Adapting a recipe based on research. • Working to a given timescale. • Working safely and hygienically with independence.
	Evaluate	<ul style="list-style-type: none"> • Tasting and evaluating different food combinations. • Describing appearance, smell and taste. • Suggesting information to be included on packaging. 	<ul style="list-style-type: none"> • Describing the taste, texture and smell of fruit and vegetables. • Taste testing food combinations and final products. • Describing the information that should be included on a label. • Evaluating which grip was most effective. 	<ul style="list-style-type: none"> • Establishing and using design criteria to help test and review dishes. • Describing the benefits of seasonal fruits and vegetables and the impact on the environment. • Suggesting points for improvement when making a seasonal tart. 	<ul style="list-style-type: none"> • Evaluating a recipe, considering: taste, smell, texture and appearance. • Describing the impact of the budget on the selection of ingredients. • Evaluating and comparing a range of food products. • Suggesting modifications to a recipe (e.g. This biscuit has too many raisins, and it 	<ul style="list-style-type: none"> • Identifying the nutritional differences between different products and recipes. • Identifying and describing healthy benefits of food groups. 	<ul style="list-style-type: none"> • Evaluating a recipe, considering: taste, smell, texture and origin of the food group. • Taste testing and scoring final products. • Suggesting and writing up points of improvements when scoring others' dishes, and when evaluating their own throughout the

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					is falling apart, so next time I will use less raisins).		planning, preparation and cooking process. <ul style="list-style-type: none"> Evaluating health and safety in production to minimise cross contamination.
KNOWLEDGE	Cooking and nutrition	<p>*Understanding the difference between fruits and vegetables.</p> <ul style="list-style-type: none"> 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"> To know that 'diet' means the food and drink that a person or animal usually eats. 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 	<ul style="list-style-type: none"> To know that not all fruits and vegetables can be grown in the UK. To know that climate affects food growth. To know that vegetables and fruit grow in certain seasons. To know that cooking instructions are known as a 'recipe'. To know that imported food is food which has been brought into the country. To know that exported food is food which has been sent to another country.. To understand that imported foods travel from far away and this can negatively impact the environment. To know that each fruit and vegetable gives us nutritional benefits because they contain vitamins, minerals and fibre. To understand that vitamins, minerals and fibre are important for energy, growth and maintaining health. To know safety rules for using, storing and cleaning a knife safely. 	<ul style="list-style-type: none"> To know that the amount of an ingredient in a recipe is known as the 'quantity.' To know that it is important to use oven gloves when removing hot food from an oven. To know the following cooking techniques: sieving, creaming, rubbing method, cooling. To understand the importance of budgeting while planning ingredients for biscuits. 	<ul style="list-style-type: none"> To understand where meat comes from - learning that beef is from cattle and how beef is reared and processed, including key welfare issues. To know that I can adapt a recipe to make it healthier by substituting ingredients. To know that I can use a nutritional calculator to see how healthy a food option is. To understand that 'cross-contamination' means bacteria and germs have been passed onto ready-to-eat foods and it happens when these foods mix with raw meat or unclean objects. 	<ul style="list-style-type: none"> To know that 'flavour' is how a food or drink tastes. To know that many countries have 'national dishes' which are recipes associated with that country. To know that 'processed food' means food that has been put through multiple changes in a factory. To understand that it is important to wash fruit and vegetables before eating to remove any dirt and insecticides. To understand what happens to a certain food before it appears on the supermarket shelf (Farm to Fork).



			these 'hidden sugars'.	<ul style="list-style-type: none"> To know that similar coloured fruits and vegetables often have similar nutritional benefits. 			
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**LANGTOFT PRIMARY SCHOOL
PROGRESSION OF SKILLS**

TEXTILES

		EYFS/Y1	Y2	Y3	Y4	Y5	Y6
SKILLS	Design	<ul style="list-style-type: none"> Using a template to create a design for a puppet. 	<ul style="list-style-type: none"> Design a pouch 	<ul style="list-style-type: none"> Designing and making a template from an existing cushion and applying individual design criteria. 	<ul style="list-style-type: none"> Writing design criteria for a product, articulating decisions made. Designing a personalised book sleeve. 		
	Make	<ul style="list-style-type: none"> Cutting fabric neatly with scissors. Using joining methods to decorate a puppet. Sequencing the steps taken during construction. 	<ul style="list-style-type: none"> Selecting and cutting fabrics for sewing. Decorating a pouch using fabric glue or running stitch. Threading a needle. Sewing running stitch, with evenly spaced, neat, even stitches to join fabric. Neatly pinning and cutting fabric using a template. 	<ul style="list-style-type: none"> Following design criteria to create a cushion or Egyptian collar. Selecting and cutting fabrics with ease using fabric scissors. Threading needles with greater independence. Tying knots with greater independence. Sewing cross stitch to join fabric. Decorating fabric using appliqué. Completing design ideas with embellishing the collars based on design ideas. 	<ul style="list-style-type: none"> Making and testing a paper template with accuracy and in keeping with the design criteria. Measuring, marking and cutting fabric using a paper template. Selecting a stitch style to join fabric, working neatly by sewing small, straight stitches. Incorporating fastening to a design. 		
	Evaluate	<ul style="list-style-type: none"> Reflecting on a finished product, explaining likes and dislikes. 	<ul style="list-style-type: none"> Troubleshooting scenarios posed by teacher. 	<ul style="list-style-type: none"> Evaluating an end product and thinking of other ways in which to create similar items. 	<ul style="list-style-type: none"> Testing and evaluating an end product against the original design criteria. Deciding how many of the criteria should be met for 		

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					the product to be considered successful. <ul style="list-style-type: none"> • Suggesting modifications for improvement. • Articulating the advantages and disadvantages of different fastening types. 		
KNOWLEDGE	<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"> • To know that sewing is a method of joining fabric. • To know that different stitches can be used when sewing. • To understand the importance of tying a knot after sewing the final stitch. • To know that a thimble can be used to protect my fingers when sewing. 	<ul style="list-style-type: none"> • To know that applique is a way of mending or decorating a textile by applying smaller pieces of fabric to larger pieces. • To know that when two edges of fabric have been joined together it is called a seam. • To know that it is important to leave space on the fabric for the seam. • To understand that some products are turned inside out after sewing so the stitching is hidden. 	<ul style="list-style-type: none"> • To know that a fastening is something which holds two pieces of material together for example a zipper, toggle, button, press stud and velcro. • To know that different fastening types are useful for different purposes. • To know that creating a mock up (prototype) of their design is useful for checking ideas and proportions. 			



**LANGTOFT PRIMARY SCHOOL
PROGRESSION OF SKILLS**

DIGITAL WORLD

		EYFS/Y1	Y2	Y3	Y4	Y5	Y6
SKILLS	Design			<ul style="list-style-type: none"> • Problem solving by suggesting potential features on a Micro: bit and justifying my ideas. • Developing design ideas for a technology pouch. • Drawing and manipulating 2D shapes, using computer-aided design, to produce a point of sale badge. 		<ul style="list-style-type: none"> • Researching (books, internet) for a particular (user's) animal's needs. • Developing design criteria based on research. • Generating multiple housing ideas using building bricks. • Understanding what a virtual model is and the pros and cons of traditional and CAD modelling. • Placing and manoeuvring 3D objects, using CAD. • Changing the properties of, or combining one or more 3D objects, using CAD. 	<ul style="list-style-type: none"> • Writing a design brief from information submitted by a client. • Developing design criteria to fulfil the client's request. • Considering and suggesting additional functions for my navigation tool. • Developing a product idea through annotated sketches. • Placing and manoeuvring 3D objects, using CAD. • Changing the properties of, or combining one or more 3D objects, using CAD.
	Make			<ul style="list-style-type: none"> • Using a template when cutting and assembling the pouch. • Following a list of design requirements. • Selecting and using the appropriate tools and equipment for cutting, joining, shaping and decorating a foam pouch. • Applying functional features such as using foam to create soft buttons. 		<ul style="list-style-type: none"> • Understanding the functional and aesthetic properties of plastics. • Programming to monitor the ambient temperature and coding an (audible or visual) alert when the temperature rises above or falls below a specified range. 	<ul style="list-style-type: none"> • Considering materials and their functional properties, especially those that are sustainable and recyclable (for example, cork and bamboo). • Explaining material choices and why they were chosen as part of a product concept. • Programming an N,E, S, W cardinal compass.
	Evaluate			<ul style="list-style-type: none"> • Analysing and evaluating an existing product. • Identifying the key features of a pouch. 		<ul style="list-style-type: none"> • Stating an event or fact from the last 100 years of plastic history. 	<ul style="list-style-type: none"> • Explaining how my program fits the design criteria and how it would be useful as part of a navigation tool.

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						<ul style="list-style-type: none"> • Explaining how plastic is affecting planet Earth and suggesting ways to make more sustainable choices. • Explaining key functions in my program (audible alert, visuals). • Explaining how my product would be useful for an animal carer including programmed features. 	<ul style="list-style-type: none"> • Developing an awareness of sustainable design. • Identifying key industries that utilise 3D CAD modelling and explaining why. • Describing how the product concept fits the client's request and how it will benefit the customers. • Explaining the key functions in my program, including any additions. • Explaining how my program fits the design criteria and how it would be useful as part of a navigation tool. • Explaining the key functions and features of my navigation tool to the client as part of a product concept pitch. • Demonstrating a functional program as part of a product concept pitch.
KNOWLEDGE	Technical			<ul style="list-style-type: none"> • To understand that, in programming, a 'loop' is code that repeats something again and again until stopped. • To know that a Micro:bit is a pocket-sized, codeable computer. 		<ul style="list-style-type: none"> • To know that a 'device' means equipment created for a certain purpose or job and that monitoring devices observe and record. • To know that a sensor is a tool or device that is designed to monitor, detect and respond to changes for a purpose. • To understand that conditional statements (and, or, if booleans) in programming are a set of 	<ul style="list-style-type: none"> • To know that accelerometers can detect movement. • To understand that sensors can be useful in products as they mean the product can function without human input.

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						rules which are followed if certain conditions are met.	
	Additional			<ul style="list-style-type: none"> •To know what the 'Digital Revolution' is and features of some of the products that have evolved as a result. •To know that in Design and technology the term 'smart' means a programmed product. •To know the difference between analogue and digital technologies. • To understand what is meant by 'point of sale display.' • To know that CAD stands for 'Computer-aided design'. 		<ul style="list-style-type: none"> • To understand key developments in thermometer history. • To know events or facts that took place over the last 100 years in the history of plastic, and how this is changing our outlook on the future. • To know the 6Rs of sustainability. • To understand what a virtual model is and the pros and cons of traditional vs CAD modelling. 	<ul style="list-style-type: none"> • To know that designers write design briefs and develop design criteria to enable them to fulfil a client's request. • To know that 'multifunctional' means an object or product has more than one function. • To know that magnetometers are devices that measure the Earth's magnetic field to determine which direction you are facing.

