Hillstone Primary School Progression Map

Subject: Design and Technology

Intent: Through their experience of Design and Technology at Hillstone Primary School children will learn to use their creativity and imagination to design and make products that solve problems within a variety of contexts, considering their own and others' needs, wants and values. The skills developed through our Design and Technology curriculum will allow children at Hillstone to develop the creative, technical and practical expertise to perform everyday tasks confidently and to participate in an increasingly technological world. Our D and T curriculum reflects Hillstone's emphasis on healthy eating and therefore gives children regular opportunities to develop crucial life skills by understanding and applying the principles of a healthy balanced diet by learning to cook a variety of nutritious dishes.

Curriculum Drivers: Design and Technology at Hillstone is underpinned by our three curriculum drivers *oracy*, *problem solving* and *well being*. Children are encouraged to develop their *oracy* skills as they discuss their designs and the designs of others and especially as they continually evaluate their products as part of the iterative design process. *Problem solving* is a fundamental part of D and T at Hillstone. Each project encourages children to innovate and test their designs and to identify how their products might solve a problem for their users. Continual evaluation during the design process supports the children develop their resilience when faced with challenges and to see these as integral to the design process and a crucial part of creating a worthwhile product. The cooking and nutrition projects provide opportunities to support children as they consider how to plan and cook healthy and balanced dishes which form part of a healthy lifestyle. This knowledge makes a vital contribution towards their overall *well being* both physical and mental.

EYFS

Knowledge: Children in EYFS at Hillstone enjoy developing their early designing and making skills through a wide variety of adult and child-initiated activities. This approach encourages the children to be creative and curious thinkers and allows them to develop many of the problem solving skills essential to later learning in D&T. Through practical and play based activities children will learn how to plan and make decisions about how to approach a task, explore a wide range of materials when constructing and learn how to cut and join materials safely and effectively. Children will also be encouraged to develop healthy food choices, good hygienic practises when handling food and to be safe when preparing and cooking ingredients. Pupils will be supported in reviewing activities and changing strategy when needed.

	Nursery	Reception
Skills	**Physical Development (3 and 4 Year Olds)** -choose the right resources to carry out their own plan e.g. choosing a spade to enlarge a small hole they have dug -use one handed tools and equipment, e.g. making snips in paper with scissors **Expressive Arts and Design (3 and 4 year olds)** -make imaginative and complex "small worlds" with blocks and construction kits e.g. a city and a park -explore different materials freely to develop their ideas about how to use them and what to make -join different materials and explore different textures **Personal, Social and Emotional Development (3 and 4 year olds)** -be increasingly independent meeting their own care needs e.g. washing and drying hands thoroughly -make healthy choices about food and drink	**Physical Development (Children in Reception)** -develop their small motor skills so that they can use a range of tools competently, safely and confidently e.g. scissors, knives, forks and spoons **Expressive Arts and Design (Children in Reception)** -return to and build on their previous learning, refining ideas and developing their ability to represent them -create collaboratively, sharing ideas, resources and skills **Personal, Social and Emotional Development (Children in Reception)** -manage their own needs, including personal hygiene (hand washing) -know and talk about the different factors that support their overall health and well being, including healthy eating

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DESIGNING						
About designing: When designing children need to understand the context they are working in, think about who their products will be for and decide what tasks they will perform. As they design they will learn to generate, develop, model and communicate ideas in a variety of ways, including spoken language, drawings, diagrams, templates and pattern pieces.						
	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Knowledge	Fabulous Fruit! Fruity picnic snacks. ✓ Perfect Playgrounds! ✓ ✓ Playful Puppets ✓ -Design criteria are the aims of the project -A product should have a purpose -A product needs a function -Know there are pre-existing products related to their designs - Plans can be communicated in a range of ways, including talking and drawing	Wonderful Wheels! ✓ ✓ Enchanting Easter Decorations ✓ Scrumptious sandwiches! ✓ - Design criteria are the goals that a project must achieve. -Ideas can be generated by drawing on their own experience and knowledge of pre-existing products -Ideas can be communicated through talking, drawing and simple diagrams -Ideas can be modelled simply e.g. using templates	Sizzling Spanish omelettes! ✓ Pop ups! ✓ ✓ Magnetic machines to the rescue! ✓ ✓ -Design criteria are the exact goals a project must achieve to be successful and how their product will meet the needs of the intended user -Ideas can be communicated through discussion, annotated sketches, step by step instructions -Designs and plans can be informed by research about pre-existing products and by identifying the needs of intended users	Enjoy Egyptian flat breads! ✓ Bags of fun! ✓ Lovely lanterns! ✓ ✓ -Develop design criteria; gathering information about the needs and wants of a particular group -More complex ideas can be communicated in a range of ways e.g. labelled diagrams, annotated sketches and including electrical circuit diagrams -Ideas (focusing on the needs of the user) can be generated and design decisions made based on the availability of resources	Moon buggies! ✓ ✓ ✓ ✓ Blitz! Air raid shelters ✓ Fantastic fajitas! ✓ -Design specification can be developed to guide their thinking and feed into their design criteria -Research about related products and inventions can be drawn on to help generate innovative ideas - Ideas can be communicated in an increasingly detailed way, for example, diagrams showing a specific part of a design	Terrific toys! ✓ Hillstone Inventors! ✓ ✓ ✓ ✓ Family feast! ✓ -Design criteria should cover the intended use of the product, age range targeted and final appearance of their products. -Ideas can be communicated in a range of ways, including through discussion, annotated sketches, detailed diagrams, prototypes, pattern pieces and computer-aided design.
Skills	-children create a design to meet simple design criteria. -describe what their products are for -say how their product will work -explore existing products to help come up with ideas -talk about their designs and draw their ideas (possibly using ICT)	-children use design criteria and create plans where they state what they are designing and making, say who it is for and how it will work or be used. -investigate existing products and evaluate these before beginning to make their product -develop and communicate ideas before making by talking and drawing and through simple diagrams (possibly using ICT). -model ideas, e.g. by using a template for their bunting flag	-children describe the purpose of their product and describe how their product will meet the need of their intended user - they will communicate their ideas in a growing range of ways to explain how particular parts of their products work, e.g. through discussion, annotated sketches, step by step instructions in their design plans -use research of pre-existing products related to their designs and of intended users to help inform their design process and decision making	-carry out surveys and gather information about the needs and wants of their intended users e.g. asking Mum her preferences before designing her a bag -share and clarify ideas through discussion and through more complex diagrams and sketches including an electrical circuit diagram e.g. for their electrical lantern product (possibly making use of ICT) -learn to make design decisions based on realistic ideas (cost/availability of resources) and reflect this in their planned design	-children create their product's design specification based on research of existing products and their target users e.g. taste testing ingredient combinations for their fajitas -Children will draw diagrams showing specific parts of their design to communicate their ideas in a more detailed way (possibly using computer aided design)	-Children develop design criteria for a functional and appealing product that is fit for purpose and carry out research (surveys, questionnaires, web-based resources) to support their design decisions e.g. which sensory features to include on their toy -Children will communicate their ideas in a range of ways including detailed diagrams highlighting sections or showing functions, pattern pieces and computer aided design (e.g. CAD used for logo designs)

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MAKING

About making: when making children should select from a range of tools and equipment, explaining their choices. They also need opportunities to choose materials and components they will use, thinking about their working characteristics. They should follow procedures for safety and hygiene and develop a repertoire of practical skills and techniques, working with increasing accuracy.

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Knowledge	Playful Puppets ✓ Fabulous Fruit! Fruity picnic snacks. ✓ Perfect Playgrounds ✓ ✓ -Know that a plan can be followed -It is important to choose the right tool for their task e.g. scissors to cut accurately -Know that different materials are suitable for different purposes, depending on their specific properties e.g. elastic on their pirate patch is stretchy -Know that it is important to measure, cut and join carefully (with adult support) -Rules are made to keep people safe from danger	Wonderful Wheels! ✓ ✓ Enchanting Easter decorations ✓ Scrumptious sandwiches! ✓ -A plan helps you to know what to do next -Materials and components should be chosen based on their properties and characteristics and that they could give explanations for this e.g. I chose wood because it makes my toy's structure stiff and stable-know that materials should be measured, marked out, cut and joined -Know decorative detail or feature can be added to something to make it more attractive. -It is necessary to follow simple safety and hygiene rules	Sizzling Spanish omelettes! ✓ Pop ups! ✓ ✓ Magnetic machines to the rescue! ✓ ✓ -A plan gives the order of the main stages of making -Know about a wider range of materials, components and tools and that they should be selected on the basis of their properties for a specific task e.g. magnetic materials for their magnetic machine, junior hacksaw for cutting wood -There are procedures for safety and hygiene related to their product	Enjoy Egyptian flat breads! ✓ Bags of fun! ✓ Lovely lanterns! ✓ ✓ -A plan should be followed for building products using more complex components in order for them to work e.g. electrical circuits -Materials for a specific task must be selected on the basis of their properties. These include physical properties as well as availability and cost. -There are techniques for using a growing range of tools accurately and safely -Working carefully, safely and hygienically with a growing range of tools and equipment, including electrical resources is important	Moon buggies! ✓ ✓ ✓ ✓ Fantastic fajitas! ✓ Blitz! Air raid shelters ✓ -A detailed plan can include accurate lists or quantities of tools, equipment, materials or ingredients. Know how to use diagrams of specific parts of a design to aid construction -Materials should be cut and combined with precision -Selected tools, materials and ingredients should be used with thorough and well-established safety and hygiene routines	Terrific toys! ✓ Hillstone Inventors! ✓ ✓ ✓ ✓ Family feast! ✓ -An accurate plan which details accurate quantities, measurements, steps and processes is important for the success of a final product -Precision is important in producing a polished, finished product. -The correct selection of tools and careful measurement can ensure the parts of a product fit together correctly. -Safety and hygiene routines should be followed consistently in all their practical activities
Skills	-children create a simple plan to follow when making their products -children use simple tools, including scissors, hole punch, stapler to cut or join their products - children select and use a range of materials, beginning to explain their choices. -begin to measure, cut and join materials for their products (with adult support) -children should follow rules to keep safe during a practical tasks and wash hands before touching food (with adult support)	-Create simple list type plan to follow when making their product -Choose appropriate components and materials and explain their choices. - Use simple tools more accurately (e.g. scissors, needle, junior hacksaw, cooking utensils) and develop more precise measuring, cutting and joining techniques -Add simple decorative embellishments, such as buttons, ribbon, sequins e.g. to their bunting flags -Work safely and hygienically in cooking and construction activities	-children create step by step plans with a clear order of the main stages of making -build on their experience in KS1 and select tools and equipment suitable for the task and explain their choices based on functional and aesthetic qualities -measure, mark, cut and shape materials and components with some accuracy -apply a range of finishing techniques, including those from art and design, with some accuracy -use a growing range of tools and appliances (e.g. heat sources in cooking) safely and hygienically	-children create and follow more detailed and complex plan, including electrical circuit diagrams to build their products -children select tools and materials that are appropriately matched to the skills and techniques they will be using (e.g. glue guns, electrical components) - measure, mark, cut and shape materials and components with increasing accuracy -work safely and hygienically when making products and learn to use electrical components and equipment with safety and care.	-follow plans which give details of specific parts of a product as well as quantities of tools, materials or ingredients -use techniques with a number of steps -children will select, combine, measure and cut out materials and ingredients purposefully and precisely and use a range of tools safely and with accuracy -name and select increasingly appropriate tools, materials and ingredients for a task -work safely and hygienically by demonstrating well-established safety and hygiene routines	-follow detailed plans to make their products with care and accuracy -Select appropriate tools for a task and use them safely and accurately. -accurately measure, mark, cut out and shape materials and components -accurately assemble, join and combine materials and components -apply a range of finishing techniques including those from art and design to produce aesthetically pleasing products e.g. embellishments to add a sensory feature to their toy -demonstrate resourcefulness when tackling practical problems

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Evaluating						
About evaluating: when evaluating children should make increasingly sophisticated judgements about their own ideas and products against design criteria. They should consider the views of others in order to improve their work. They should also investigate and evaluate existing products and learn about important inventors and inventions.						
	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Knowledge	Fabulous Fruit! Fruity picnic snacks. ✓ Perfect Playgrounds ✓ ✓ Playful Puppets ✓ -Talk about their own product -Notice important features of pre-existing products related to their designs e.g. how a swing moves -Make simple judgements e.g. what they like or dislike about a product	Wonderful Wheels ✓ ✓ Enchanting Easter decorations ✓ Scrumptious sandwiches! ✓ - Talk about their own ideas and products and the products of others -A product (their own or pre-existing) might be improved in different ways e.g. making it more stable, more attractive	Sizzling Spanish omelettes! ✓ Pop ups! ✓ ✓ Magnetic machines to the rescue! ✓ ✓ -Identify and talk about strengths and weaknesses in their products -Asking questions can help others to evaluate their products, such as asking them whether the selected materials achieved the purpose of the model. - Know particular products have been designed for specific tasks and that there are significant designers or inventors related to their products	Enjoy Egyptian flat breads! ✓ Bags of fun! ✓ Lovely lanterns! ✓ ✓ -Evaluation can be done by considering whether the product does what it was designed to do, whether it has an attractive appearance, what changes were made during the making process and why the changes were made. -Evaluation includes suggesting improvements and explaining why they should be made -Pre-existing products related to their designs will have design features their designers would like to emphasise	Moon buggies! ✓ ✓ ✓ ✓ Blitz! Air raid shelters ✓ Fantastic fajitas! ✓ -Evaluations can be made by asking product users a selection of questions to obtain data on how the product has met its design criteria. -Testing a product against the design criteria will highlight anything that needs improvement or redesign. Changes are often made to a design during manufacture -Inventions or products have significantly changed or improved people's lives	Terrific toys! ✓ Hillstone Inventors! ✓ ✓ ✓ ✓ Family feast! ✓ -Design is an iterative process, meaning alterations and improvements are made continually throughout the manufacturing process. -Evaluating a product while it's being manufactured, and explaining these evaluations to others, can help to refine it. -Existing products are influenced by target audience and how significant inventors have improved the way we live
Skills	-talk about their own ideas and what they are making -make simple judgements and say how they might improve -name and explore existing products linked to their designs e.g by visiting a real playground before designing their own playground equipment	-children talk about their ideas and those of others as a class and individually. Children refer to what their product can do, who it will be for and how it will work, what materials it will be made from, what they like or dislike about the product -explore existing products and understand products are designed for a specific purpose -make simple judgements throughout the design process -identify if their product meets the design criteria	-children suggest improvements to their products and describe how to implement them, beginning to take the views of others into account. -explain how an existing product meets the needs of the user -explore key designers/inventors related to their products e.g. pop up book designers -children should refer to their design criteria as the make their product and use this to evaluate their completed product	- children Identify what has worked well and what aspects of their products could be improved, acting on their own suggestions and those of others when making improvements. -children should investigate and analyse pre-existing and their own products to see how well products work, why materials were chosen and if they achieve their purpose -learn about ground breaking products related to their product e.g Thomas Edison and the lightbulb when making lanterns	-children test and evaluate their own products against a detailed design criteria and make adaptations as they develop the product. -children test and analyse their products and ask others for feedback about the quality of design, methods of construction and how well it meets user needs and wants -research significant designers and inventors related to their products e.g. researching Henry Ford or the invention of the motor car during their moon buggy project	-children demonstrate modifications made to a product as a result of ongoing evaluation by themselves and to others. -children should investigate and analyse a variety of factors, such as, cost, how sustainable or seasonal materials and ingredients are, and if a product is innovative -children analyse how an invention or product has significantly changed or improved people's lives e.g. George Devol (programmable robot) during Hillstone Inventors project

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STRUCTURES

	KS1		KS2			
	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Knowledge	Perfect Playgrounds -Know different materials can be used for different purposes, depending on their properties. For example, know cardboard is a stronger building material than paper -Begin to know structures can be made more stable by choosing a larger base or adding triangular shapes	Wonderful Wheels -Know structures can be made stronger, stiffer and more stable by using wood or cardboard and triangular shapes rather than squares. A broader, heavier base will also make a structure more stable.	Magnetic machines to the rescue! -Know that shell structures are hollow, 3-D structures with a thin outer covering, such as a box. -Know that structures can be strengthened and reinforced and can support mechanisms	Lovely lanterns -Know frame structures are made from thin, rigid components, such as a tent frame. The rigid frame gives the structure shape and support. Diagonal struts can strengthen the structure (*optional Innovate Task*)	Moon buggies! Blitz! Air raid shelters -Know a rigid chassis structure for their "Moon Buggy" designs can support the mechanisms used to make their model move. -Know stable and rigid frame structures make use of cross braces and diagonal struts.	Hillstone Inventors! -Know stable and rigid frame structures can be constructed using a range of techniques ***if necessary*** for their designs.
Skills	-Construct simple structures, models or other products using a range of materials. -Children explore how a structure can be made stable by working in 3D with a range of materials. -Develop cutting, joining and measuring skills. Children work collaboratively as a class to design and make Shard End's ideal playground -through possible "Innovate Task" children learn to make a mast or flag pole structure to support their product	-Build stable, stiff and strong structures and measure, cut and join materials including wood safely and with growing accuracy. These structures will support a simple mechanism. - Explore how a structure can be made stronger, stiffer and more stable. -Construct a variety of moving model toys	- Create shell structures showing awareness of how to strengthen, stiffen and reinforce them. Shell structures can be strengthened by gluing several layers of card together, using triangular shapes as diagonal supports on corners. - Build a framework using a range of materials to support mechanisms.	- Construct frame structures using diagonal struts to strengthen them, for example, a structure to hang a lantern on (*optional Innovate task*)	-Build frame structures and strengthen by using triangular shapes rather than squares, adding diagonal support struts and using 'Jinks' corners (small, thin pieces of card cut into a right-angled triangle and glued over each joint to straighten and strengthen them). -Know various methods can be used to support a framework. These include cross braces, guy ropes and diagonal struts. -Understand frameworks can be further strengthened by adding an outer cover. -Children may scale up their designs through an optional "Innovate! Task" and work collaboratively to construct a large shelter that can be tested out in person. -Children understand how to ensure their shelter can withstand falling debris and test the strength of their products	If necessary for their designs: - Select the most appropriate materials and frameworks for different structures, explaining what makes them strong. -Children should understand strength can be added to a framework by using a variety of methods. For example, if using multiple layers corrugated cardboard can be placed with corrugations running alternately vertically and horizontally. Triangular shapes can be used instead of square shapes because they are more rigid. -Children should draw on previous learning and use a range of methods to construct their structure

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MECHANISMS & MECHANICAL SYSTEMS ✓						
	KS1		KS2			
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Knowledge	Perfect Playgrounds ✓ ✓ -A mechanism will add movement to a model. An axle is a rod or spindle that passes through the centre of something to allow it to move. A lever can make something move up or down. .	Wonderful Wheels ✓ ✓ - A mechanism makes a job easier to do. Begin to know that a mechanism is a device that takes one type of movement and produces a different one. Mechanisms include sliders, levers, linkages, gears, pulleys and cams -Know an axle is a rod or spindle that passes through the centre of a wheel to connect two wheels.	Pop ups! ✓ ✓ Magnetic machines to the rescue! ✓ ✓ -Levers consist of a rigid bar that rotates around a fixed point. They can reduce the amount of work needed to lift a heavy object. Axles are shafts on which objects can rotate to make a model move. Pulleys can be used in systems to move an object up and down. -Know that sliders move from side to side or up and down making moving parts in pop up books -Understand cams can convert circular motion into up and down motion and can be used in models and 3D pictures	Lovely lanterns ✓ ✓ -Mechanisms can be used to add functionality to a model e.g. a vertical or horizontal pulley lifts or moves an object (*optional Innovate Task)*	Moon buggies ✓ ✓ ✓ ✓ -Mechanisms can be used to add functionality to a model. For example, gears, axles and pulleys in motorised vehicles. .	Hillstone Inventors ✓ ✓ ✓ ✓ -Know about the function and purpose of a range of mechanical systems and know mechanism can create movement and add functionality ***if necessary*** for their designs.
Skills	-Use a mechanism (lever, axle) in a piece of model playground equipment e.g. a swing or roundabout using an axle or see saw using a lever	-Children construct a variety of moving model toys which incorporate simple mechanisms, such as, axels and wheels, levers and linkages or even cams to add movement to their toys	-Explore and use a range of mechanisms (levers, sliders, axles, cams & pulleys) in models or products. -Children understand how to use levers, linkages and other mechanisms to produce a pop-up book with magical moving parts -Children develop knowledge of pulleys, levers and axles and design a machine that could lift The Iron Man out of a trap to safety. Or invent a magnetic "fishing rod" using a pulley system to help catch something metal for The Iron Man's dinner.	-Build on previous learning and use a mechanical system to lift or move their lantern e.g. a vertical or horizontal pulley system (*optional Innovate Task*)	-Explore and use a range of mechanisms (axles, gears and pulleys) in models or products. -Children understand how to use mechanical systems including pulleys and motors to make the buggy's wheels turn. Innovate with alternative systems for creating movement, such as, elastic band or air powered vehicles.	If necessary for their designs: -Explain and use mechanical systems in their products to meet a design brief. -Children should draw on knowledge of a range of mechanisms and mechanical systems which can include sliders, levers, linkages, gears, pulleys axles, wheels and cams. -More than one mechanism could be combined within their models *if necessary* for their designs.

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TEXTILES ✓						
	KS1		KS2			
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Knowledge	Playful Puppets ✓ -Different materials are suitable for different purposes, depending on their specific properties. For example, elastic will stretch and string will not -Some tools perform specific tasks e.g. a hole punch can make holes in a fabric eye patch	Enchanting Easter decorations ✓ -The properties of components and materials determine how they can and cannot be used. -A template can be used to create an accurate design on fabric -Stitching can join fabric together -Different tools have characteristics that make them suitable for specific purposes e.g needles are sharp and used for joining fabric	*Textiles projects are carried out once within lower and upper KS2 See Year 4 for knowledge and skills progression	Bags of fun! ✓ -Different materials and components have a range of properties, making them suitable for different tasks. It is important to select the correct material or component for the specific purpose, depending on the design criteria. -A pattern or template can be used to mark out and measure a design accurately on fabric -Accurate stitching will produce a more robust product -Fastenings can include buttons, Velcro, poppers, drawstrings. Fastenings add functionality to a bag or purse by keeping their contents secure	*Textiles projects are carried out once within lower and upper KS2 See Year 6 for knowledge and skills progression	Terrific toys! ✓ -Soft and sensory fabrics and interesting embellishments can add functionality to a soft toy -Accurate stitching techniques and hidden seams produce a strong and aesthetically pleasing textile product -Accurate cutting and joining techniques are necessary to combine different fabric shapes into a high quality finished product
Skills	-Select and use a range of materials including textiles, beginning to explain their choices. -Measure, cut and join a variety of different materials (including textiles) to create pirate patches or pirate flags for a class voyage on the high seas! -Use these as props in the role play area to enhance storytelling activities.	-Choose appropriate components & materials including textiles and suggest ways of manipulating them to achieve the desired effect. -use a needle safely and sew fabric using a simple running stitch -combine a variety of textiles and develop safe needle skills and simple sewing techniques and to create a seam -work collaboratively with classmates to create a string of colourful bunting to decorate the classroom for Best of Britain celebrations.		-Choose from a range of materials including textiles showing an understanding of their different characteristics. -Use patterns and templates with fabric to make a 2D shape become a 3D product. .-Demonstrate increasingly accurate and secure stitching and use sewing techniques to join two pieces of fabric and add fastenings and embellishments -Add a suitable fastening to make the bag close securely and keep valuables safe		-Choose the best materials including textiles for a task, showing an understanding of their working characteristics. It is important to understand the characteristics of different materials to select the most appropriate material for a purpose. This might include flexibility, waterproofing, texture, colour, cost and availability. - Select and combine fabric purposefully. -Textiles should be cut and combined with precision. -At least two sewing stitches should be used and children should understand how to create a hidden seam by working on their product inside out

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COOKING & NUTRITION ✓

	KS1		KS2			
	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Knowledge	Fabulous Fruit! Fruity picnic snacks. ✓ -Know it is recommended that people eat at least five portions of fruit and vegetables every day. -Know some food comes from animals and some food comes from plants -Fruits are ingredients that might need to be chopped or sliced using a (blunt edged) knife and chopping board -Know rules are made to keep people safe from danger e.g. washing hands before touching food	2.6 Scrumptious sandwiches! ✓ -Some ingredients need to be prepared before they can be cooked or eaten. There are many ways to prepare ingredients; peeling skins, grating hard ingredients, chopping and slicing -A healthy diet should include meat or fish, starchy foods, some dairy food, a small amount of fat and plenty of fruit and vegetables -Hygiene rules include washing hands before touching food, cleaning surfaces and storing food carefully	Sizzling Spanish omelettes ✓ -Know there are five main food groups that should be eaten regularly as part of a balanced diet and that foods high in fat, salt and sugar should only be eaten occasionally as part of a healthy, balanced diet. -Specific utensils can be chosen for preparing ingredients, such as, knives and peelers. They can be used safely by using a chopping board on a flat surface and by using the bridge method for chopping where necessary.	Enjoy Egyptian flat breads! ✓ -Know what constitutes a balanced diet -Particular areas of the world have conditions suited for growing certain crops -Different ingredients have a range of properties making them suitable for different dishes. It is important to select the correct ingredient for the dish. Ingredients look and taste better when in season. -Cooking techniques include baking, boiling, frying, grilling and roasting -Safety and hygiene rules should be followed during cooking activities	Fantastic fajitas! ✓ -Know the principles of planning and preparing a range of heathy dishes -Know a balanced diet gives your body all the nutrients it needs to function correctly. This means eating a wide variety of foods in the correct portions. -Seasonality is the time of year when the harvest or flavour of a type of food is at its best. Buying seasonal food is beneficial for many reasons; the food tastes better, it is fresher because it has not been transported thousands of miles, the nutritional value is higher, the carbon footprint is lower, it supports local growers and is usually cheaper -Ingredients should be cut and combined with precision e.g. vegetables should be chopped using the bridge method, ingredients weighed using scales -There are rules for using utensils and ingredients safely and hygienically. -Cooking equipment should be cleaned and put away after use.	Family feast! ✓ -Eating a balanced diet is a positives lifestyle choice that should be sustained over time. Food that is high in fat, salt or sugar can still be eaten occasionally as part of a balanced diet. -Organic produce is food that has been grown without the use of manmade fertilisers, pesticides etc. -Ingredients can be compared using a range of criteria e.g. nutritional value, taste, appearance, seasonality, value for money -Precision is important in producing a finished product. Careful measurement and preparation of ingredients ensure the dish is made correctly -The qualities of different ingredients can be considered to select the most appropriate ingredient for a healthy dish. -Hygiene and safety rules for cooking and food preparation are essential for successful food products
Skills	-Children develop an understanding of how fruit is grown and harvested for us to eat through class visit to the farm. -Identify the origins of the fruits we use at snack time and understand how to work hygienically and safely with food. -Select healthy ingredients for an uncooked fruit or vegetable dish. -Learn to chop and combine fruit safely and hygienically using blunt edged knives. -Measure and weigh food items using non-standard measures, such as spoons and cups.	-Learn to describe the types of food needed for a healthy diet and apply the principles to make a simple, healthy sandwich. - Identify the origin of some common foods (milk, eggs, some meats, common fruit and vegetables). -Prepare ingredients by peeling, grating, chopping and slicing. -Explore different types of bread and savoury sandwich fillings to create their own unique sandwich snack to share at a class party. -Develop their knowledge of a growing range of ingredients and learn where these ingredients came from -Learn safe knife skills by spreading, slicing and chopping and learn how to work safely and hygienically with food.	-Plan which ingredients will be needed for the dish and explain why -Identify the main food groups -Prepare and cook a simple savoury dish using peeling, chopping, grating, whisking techniques -Use utensils and cooking equipment safely for cutting, preparing and cooking ingredients (possibly during a Forest school experience) -Work hygienically during the preparation and cooking processes (use a heat source with adult support)	-Identify and use a range of cooking techniques to prepare a simple dish. -Use knowledge of balanced diet to adjust, adapt and improve ingredients in a bread recipe to increase its healthiness. -Identify and name foods that are produced in different places in the UK and beyond. -Investigate ingredients used to make Egyptian style breads and accompaniments. -Learn to consider a healthy balanced diet and the seasonality and origins of the ingredients they choose. -Explore using our allotment as source of seasonal ingredients. -Work safely and hygienically with ingredients and utensils (use a heat source under supervision)	-Learn to use an increasing range of preparation and cooking techniques to cook a savoury main dish. -Evaluate meals and consider if they contribute towards a balanced diet. -Describe what seasonality means and explain some of the reasons why it is beneficial. -Investigate and evaluate ingredients needed for their Mexican main meals and learn to combine them together to create a nutritious savoury dish. -Learn to choose healthy and seasonal ingredients to produce a tasty Mexican meal, such as, vegetarian fajitas -Work hygienically and safely during the cooking process. Learn to clean the cooking space before and after use.	-Follow a recipe that requires a wide variety of techniques and ingredients with accuracy and safety. -Plan a healthy family favourite meal, justifying why it contributes towards a balanced diet. -Know using seasonal food is beneficial for many reasons & explain how organic produce is grown. -Investigate and evaluate how healthy and seasonal ingredients can be combined to create a delicious family meal. -Share favourite recipe ideas and compile a family favourite cookbook which reflects Hillstone's healthy eating ethos. -Learn vital life skills by working safely and hygienically when preparing, cooking and sharing a healthy main meal and become confident chefs by cooking these dishes to enjoy now and in the future.

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ELECTRICAL SYSTEMS (KS2 ONLY) ✓						
	KS1		KS2			
	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Knowledge			Pop ups! ✓ ✓ -Know how an electric circuit works (*optional InnovateTask*)	Lovely lanterns! ✓ ✓ -A series circuit is made up of an energy source, such as a battery or cell, wires and a bulb. The circuit must be complete for the electricity to flow.	Moon buggies! ✓ ✓ ✓ ✓ -Electrical circuits can be controlled using an on/off switch -Electrical systems can incorporate motors	Hillstone Inventors! ✓ ✓ ✓ ✓ -An electrical system (circuit, switch, lamps, motor etc) can add functionality to a product *if necessary* for their designs.
Skills			*Optional Innovate Task*: -Incorporate a simple series circuit into a 3D picture through children may consider adding an electrical element to their page. e.g character's eyes could light up	-Incorporate a simple series circuit into a model. Understand an electric circuit can be used in a model, such as, a lantern. It can be controlled using a switch. -Children develop knowledge of electrical circuits and create a lantern to light up a summer's evening at an end of term event (e.g. Music For A Summer's Evening). -Explore transparent and translucent materials when designing. -Learn to consider the environmental benefit of reusing glass jars in this lantern project.	-Use electrical circuits in their models or products and begin to show an understanding of control. -Use knowledge of mechanical systems including electrical circuits, pulleys and motors to make their buggy's wheels turn. - A StemDays workshop may be used to help deliver this project and will allow children to develop a computer program to control and make their models move.	If necessary for their designs: - Understand and use electrical circuits that incorporate components including (switches, lamps, and motors) and use programming to control their products.

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COMPUTER MONITORING & CONTROL (UPPER KS2 ONLY) ✓						
	KS1				KS2	
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Knowledge					Moon buggies ✓ ✓ ✓ ✓ -Equipment and devices can be controlled by pressing buttons on a control panel, such as on a washing machine or microwave. -Models can be controlled by a computer program	Hillstone Inventors! ✓ ✓ ✓ ✓ -Computer programs can control electrical circuits that include a variety of components, such as, lamps and motors -Know a device (tablet, laptop) can be used to control a product -Microcontrollers can be programmed to make models perform different actions (e.g. lights flash, motors move) -Computers programs can be used to help design products (CAD)
Skills					- Begin to explore how a device can be controlled by a computer program. -A StemDays workshop may be used to support part of this project and will allow children to develop a computer program to control and make their models move	-Explore how computer programs can control electrical circuits that include a variety of components, such as, lamps and motors -Link a physical device to a computer or tablet so that it can be controlled by a program. -Design a model which can be controlled by a computer -Use a microcontroller (crumble or microbit) in their designs and products (StemDays workshop to support delivery of this) -Use computer software to design images and logos

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Impact (End Points)						
EYFS	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Children will be able create products for real and imaginary purposes using loose parts and simple tools. They should learn to talk about their ideas, how they have worked and explain what their product is for. They should work individually and collaboratively to problem solve and construct their products. Children will explore new foods and become aware of healthy food choices and hygienic food handling. PD Early Learning Goals -Use a range of small tools, including scissors EAD Early Learning Goals -safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function to -share their creations explaining the process they have used PSED Early Learning Goals -manage their own basic hygiene...understanding the importance of healthy food choices	Children will become aware of the importance of some existing products and designs. Children will be able to describe their designs and think about the materials used before making them. They can talk about their ideas and make simple drawings to show what their product will look like Children will be able to construct a simple structure and begin to know how to make this stable. Children will build simple mechanisms (e.g. axle on a model swing) Children are able to use simple tools (scissors, stapler) safely and competently. Children will begin to select healthy ingredients and work safely and hygienically with food as they plan & make food products Children begin to evaluate their product based on their initial design brief	Children will explore and evaluate existing products related to their designs and know inventors create new things Communicate their ideas and plans through talking, drawing, templates and ICT where possible Children will select from a growing range of materials and begin to understand their properties (e.g. wood is strong and rigid) Children will be able to build a structure and explore how to make it stronger, stiffer and more stable Children will construct a mechanism (e.g. axle, wheels, cam) to make their product move Use simple tools more accurately (e.g. scissors, needle, junior hacksaw, cooking utensils) Children will know where food comes from and use the basic principles of a healthy diet to plan & create food products Children evaluate their ideas and products against design criteria	Children will be able to investigate and evaluate existing products and begin to understand how key inventors have helped shape the world Children will generate their ideas and communicate them through discussion, annotated sketches, step by step instructions Children will select and use a widening range of materials and ingredients and make more informed choices according to their properties Children will create shell structures showing an awareness of how to strengthen, stiffen and reinforce them (e.g. a “tank” for fishing game.) Children will use a range of mechanisms levers, sliders, axles, cams & pulleys in models (in moving picture and magnetic machines). Use a growing range of tools (junior hacksaw, scissors, glue gun) more competently Children will use knowledge of food groups to plan & cook a healthy balanced dish Children will evaluate their products against their design criteria and begin to take into account the views of others	Children will know design features of existing products related to their project & understand the importance of inventors like Thomas Eddison Children will use labelled diagrams including electrical circuit diagrams to communicate their ideas Children will understand it is important to select the correct material for the specific purpose depending on the design criteria e.g. sewing a secure fastening onto their bag design Children will use a simple electrical circuit in their product (e.g. lantern) Select and use more complex tools carefully e.g. electrical components, wire cutters Children will identify and name foods that are produced in different places in the UK and beyond & adapt and improve ingredients in their recipe to increase its healthiness e.g. when planning & cooking flat breads Children will be able to evaluate whether their product meets the design criteria and identify if any changes were made during the design process and why the changes were made	Children will use research to understand the significance of a designer or inventor e.g. Henry Ford and be able to describe how their invention caused a change in society Children will draw diagrams showing specific parts of their design to communicate their ideas in a more detailed way Children will select and combine materials and ingredients purposefully and precisely and use a range of tools safely and with accuracy Children will build frame structures and strengthen by using triangular shapes adding diagonal support struts, cross braces, and using 'Jinks' corners. Children will understand frameworks can be further strengthened by adding an outer cover (e.g. Anderson Shelter products) Children will explore and use a range of mechanisms (axles, gears and pulleys) in models or products. e.g. gears, axles, pulleys and motors in moon buggies. Children will use electrical circuits and begin to explore how a product can be controlled by a computer program Prepare and cook a savoury main dish using a range of cooking techniques, taking account of what is healthy and seasonal Children will understand that it is necessary to make adaptions as they develop their product and will test and evaluate products against detailed design criteria	Children will understand how existing products are influenced by target audience and how significant inventors have improved the way we live e.g. George Devol (programmable robot) Children will communicate their ideas in a range of ways including detailed diagrams highlighting sections or showing functions, pattern pieces and computer aided design Children will choose the best materials or ingredients for a task taking into account their characteristics and other factors such as cost and availability Children should draw on previous learning using refined skills and a range of methods to construct stable structures, mechanisms, mechanical and electrical systems if necessary to their design Children should link their product to a computer or tablet so that it can be controlled by a program or use computer software in their designs (e.g. product logo) Children will plan & cook a healthy family meal and know how it contributes towards a balanced diet. They will have an understanding of seasonal and organic food and that eating a balanced diet is a positive lifestyle choice Children will understand the iterative process making alterations and improvements continually during the design process and explain their evaluations and improvements to others

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Design and Technology Project Timetable						
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	**Playful Puppets** ✓			**Perfect Playgrounds** ✓ ✓	**Fabulous Fruit! Fruity picnic snacks.** ✓	
Year 2		**Wonderful Wheels** ✓ ✓		**Enchanting Easter decorations** ✓		**Scrumptious sandwiches** ✓
Year 3	**Sizzling Spanish omelettes** ✓			**Pop ups!** ✓ ✓	**Magnetic machines to the rescue!** ✓ ✓	
Year 4	**Enjoy Egyptian flat breads** ✓			**Bags of fun!** ✓	**Lovely lanterns** ✓ ✓	
Year 5		**Moon buggies** ✓ ✓ ✓ ✓		**Fantastic fajitas!** ✓	**5.5 Blitz! Air raid shelters** ✓	
Year 6		**Terrific toys** ✓	**Hillstone Inventors!** ✓ ✓ ✓ ✓			**Family feast** ✓
There are no set projects in EYFS as the children's interests and stage of development leads planning. Teachers ensure children in EYFS are given the opportunities to develop the skills and knowledge expected for D&T by the end of Reception.						

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