

St Luke's CE Primary School

Progression of Learning



<p>Key Stage 1</p> <p>Design</p> <ul style="list-style-type: none"> - Design purposeful, functional, appealing products for themselves and other users based on design criteria -Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology <p>Make</p> <ul style="list-style-type: none"> -Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics <p>Evaluate</p> <ul style="list-style-type: none"> -Explore and evaluate a range of existing products. Evaluate their ideas and products against design criteria <p>Technical knowledge</p> <ul style="list-style-type: none"> -Build structures, exploring how they can be made stronger, stiffer and more stable explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products 	<p>Key stage 2</p> <p>Design</p> <ul style="list-style-type: none"> -Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups -Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design <p>Make</p> <ul style="list-style-type: none"> -Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately - Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities <p>Evaluate</p> <ul style="list-style-type: none"> -Investigate and analyse a range of existing products -Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work - Understand how key events and individuals in design and technology have helped shape the world <p>Technical knowledge</p> <ul style="list-style-type: none"> -Apply their understanding of how to strengthen, stiffen and reinforce more complex structures -Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] -Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] -Apply their understanding of computing to program, monitor and control their products.
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The following pages identify the progression in understanding for pupils within each year group based on the following two big ideas of the DT Curriculum:

1) That design and technology is about the creation of a product to fulfil a need

a) That design is about making choices

b) That evaluation is about understanding the effectiveness of these choices

2) That technical knowledge and skills are required in the manufacture of a product

Materials / Structures, Mechanisms, Textiles, Food and Nutrition, Electrical Systems

DESIGN

	DESIGN						
	Development Matters	National Curriculum - Design purposeful, functional, appealing products for themselves and other users based on design criteria -Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology		National Curriculum -Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups -Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design			
	EYFS	Y1	Y2	Y3	Y4	Y5	Y6
	Audience is themselves.	Audience is themselves.	Audience is identified for the design.	Audience is specified through a brief.	Audience is specified through a brief.	Specific audience is specified through a brief.	Audience is selected through market research.
KNOWLEDGE	<ul style="list-style-type: none"> Know that we can get ideas about how to design and make something by looking at examples That a plan helps us to think about what we are going to make, what we might need and how we might make it Know that there is a reason why we might design and make something (e.g. to make something stronger, more attractive) 	<ul style="list-style-type: none"> Know that there is a reason behind why they need to design and make something understand a design brief (without using the term brief) and design something to meet it (e.g. to make something stronger, more attractive) that a design can be like an original product, with a small adjustment to improve it (e.g. change of material) 	<ul style="list-style-type: none"> Know that products should be targeted to a user or audience Know that a brief identifies a need (Y1) and can be broken down into design criteria which identifies the need it should meet Know that a design criteria can be solved or met in different ways Know that a design or plan can be enhanced by generating more than one idea Know that different materials have different scientific properties which make some more suitable than others to meet a brief Know there are existing products in the wider world which can be used as inspiration for new ideas 	<ul style="list-style-type: none"> Know that a brief identifies a need (Y1) and can be broken down into design criteria which identifies the need it should meet (Y2) and know that the audience should be identified in the design criteria Know that different materials have different scientific properties and materials should be evaluated to decide which meets the brief best. Know that more than one idea should be evaluated to decide which would meet the brief the best before manufacturing. Know that a product's ability to meet the brief is based on a balance between function and appearance. 	<ul style="list-style-type: none"> That a brief identifies a need for an audience or user and can be broken down into design criteria, which identifies the needs the design should meet That the use / user of a product will affect design choices e.g. a smaller cushion for children That designs should be evaluated against the design criteria That a product's ability to meet a brief is based on a balance between function and appearance That different materials have different scientific properties which make some more suitable than others to fulfill a brief including electrical systems That more than one idea should be evaluated to decide which would meet the brief best before moving into manufacture. That function and appearance, availability of resources, time available and skill level should be taken into account when choosing the final design and manufacturing process That we can get ideas about how to design and make something by looking at examples (EYFS) that there are existing products in the wider world that can be used as a source of inspiration for new designs (Y3) 	<ul style="list-style-type: none"> That a brief identifies a need for a specific audience or user and can be broken down into design criteria, which identifies the needs the design should meet That a product should be designed with the specific audience/user in mind That a product's ability to meet a brief is based on a balance between function and appearance That the appeal of a product is based on ability of a product to fulfil a specified need, functionality, appearance and cost (and sustainability – geography link) That more than one idea should be evaluated to decide which would meet the brief best before moving into manufacture. That function and appeal, availability of resources, time available, cost, footprint and sustainability should be taken into account when choosing the final design (in cooking seasonality and cost to health) That the longevity of some materials/mechanisms can be increased through reinforcing, stiffening and strengthening techniques. <p>Specific to cooking and nutrition</p> <ul style="list-style-type: none"> To know where food they are consuming comes from That different foods are grown, caught, reared and processed in different ways e.g. organic, farmed, wild, reared caged/uncaged, organic, processed / unprocessed That seasons and climate affect food growth, but that some products are grown out of natural climates to increase yield. That different foods are grown at different times of the year, this means they are more readily available; seasonality Know the appropriate portion sizes for children and adults (link to geography and waste and over consumption of resources) 	<ul style="list-style-type: none"> That a brief identifies a need for a specific audience or user (Y5) and can be broken down into design criteria, which identifies the needs the design should meet (Y1-4) That market research can be conducted to gain a better understanding of the factors that influence the needs of the specific user, this should be incorporated into a design. That a product should be designed with the specific audience/user in mind (Y5) That more than one idea should be evaluated to decide which would meet the brief best before moving into manufacture. That function and appeal, availability of resources, time available, cost and sustainability should be taken into account when choosing the final design (Y3-5) That prototypes can be used to give an indication of how successful the design will be at the manufacturing stage. That designs should be evaluated against the design criteria and the success of prototypes made That the appeal of a product is based on ability of a product to fulfil a specified need, appearance and cost (Y5) That the longevity of some materials/mechanisms can be increased through reinforcing, stiffening and strengthening techniques (Y5). That cross section and exploded diagrams are a way of demonstrating how part of a product will work <p>Specific to cooking and nutrition</p> <ul style="list-style-type: none"> That different foods are grown, caught, reared and processed in different ways e.g. organic, farmed, wild, reared caged/uncaged, organic, processed / unprocessed (Y5) That seasons and climate affect food growth, but that some products are grown out of natural climates to increase yield. That different foods are grown at different times of the year, this means they are more readily available; seasonality Know the appropriate portion sizes for children and adults (link to geography and waste and over consumption of resources)
SKILLS	<ul style="list-style-type: none"> Use the plan, do, review model Be able to explain what they are going to make Be able to explain what they like about example products Use gestures, talking and arrangements of materials and components to show design Draw a pictorial plan Use a template to help draw a plan Use contexts set by the teacher and myself Use language of designing and making (join, build, shape, longer, shorter, heavier etc.) Select appropriate resources (scissors, glue, split pin, paperclips, staples, sellotape) 	<ul style="list-style-type: none"> have own ideas work as a class to identify the design criteria in a brief (although terminology of brief is not yet used) draw a plan which could be an adjustment to an existing design (from an example) Discuss why they have made the choices they have in their design Make choices around materials from a given list Make a list of materials needed for their design Use a template to help draw a plan and cut it Copy a teacher-made mock up and show an understanding of how it works Explain how a studied process / aspect of a product works Draw a plan which can be an adjustment to an existing design (or from an example shown) 	<ul style="list-style-type: none"> have an understanding of their own skill level when creating a design Identify a target group and the need for the design use sketches, models and pictures with words to describe designs explain purpose of product, how it will work and how it will be suitable for the user add labels to plans Discuss why they have made a design choice and link this back to the design criteria Identify how materials with different scientific properties have been used to meet the design criteria (can be verbal) Label their plans with materials needed (and properties) choose best tools and materials, and explain choices Identify techniques for joining 	<ul style="list-style-type: none"> Annotate and label their plan with materials chosen and their properties including why they have made certain choices. Label design with mechanisms and moving parts. Independent break a brief down into design criteria Identify specific use and audience Establish a success criteria which includes function and appearance Research different design ideas and collect examples Explain how a process or aspect of a product works Evaluate existing designs from the wider world to identify strengths and improvements which can be made Use an existing template to create their own template Plan the use of tabs to aid joining 	<ul style="list-style-type: none"> Develop multiple design ideas and make a final choice on a design based on its meeting of the design brief (Y3) an understanding of their own skills (Y2-3) and the time and resources available. Annotate and label their plan with materials chosen and their properties including justifying why they have made the choices they have Justify their choices of materials using scientific knowledge of their properties and suitability (Y2), and limitations including time and availability To be able to establish criteria for a successful product (Y3) factoring in their own skill level and functionality Vs appearance Research different design ideas e.g. internet or text books to collect examples Explain how a product works (different to Y1-3) and incorporate this into their design choices e.g. look at different levers and pulleys, or different types of stitches and decide which is best to meet the needs of their design Factor in seam allowances to textile designs Create their own templates and patterns <p>Specific to cooking and nutrition</p> <ul style="list-style-type: none"> Plan a sequence of actions to make a product (cooking) write a recipe 	<ul style="list-style-type: none"> Interpret a brief into a detailed design criteria, understanding that some parts of the criteria are higher priority than others and may work against each other e.g. cost Vs availability/sustainability (Y5) Develop multiple design ideas and make a final choice on a design based on its meeting of the design brief (Y3) an understanding of their own skills (Y2-3), time and resources available, cost, sustainability, footprint, seasonality and health in cooking (Y5) and the success of prototypes Annotate and label their plan with materials chosen and their properties (Y2) including labelling specific mechanisms or working parts (Y3) using cross sectional and exploded diagrams to show specific parts of the design. Justify their choices of materials using scientific knowledge of their properties and suitability (Y2), and limitations such as time, availability, sustainability, cost and footprint (Y5) Research different design ideas e.g. internet or text books to collect examples identifying the pro and cons of each design, using this to inform and refine their own design (Y5) Create prototypes and use the success of these to influence the final design To plan to use techniques to increase the longevity of a product (reinforcing, stiffening and strengthening techniques) and record this in an annotated design. Design more complex structures Choose the correct technique to fit the purpose Demonstrate an understanding of how developments in design and technology or specific inventions have had an impact on the wider world <p>Specific to cooking and nutrition</p> <ul style="list-style-type: none"> Write and adapt an existing recipe to change the taste, texture, appearance or smell that takes into account the seasonality of availability of local produce and production of minimal waste (link Geography and sustainability) Discuss their own lifestyle choices and the impact this has on their health (Science living things link) 	
VOCAB	idea, thoughts, uses, materials, design, join, tools, split pins, paperclip, staple	Uses, materials, design, join, tools, split pin, paperclips, staple, purpose, function, templates, mock-up	Uses, materials, design, join, tools, split pin, paperclips, staple, purpose, function, templates, mock-up, brief, target audience, appealing, properties, criteria	Uses, materials, design, join, tools, split pin, paperclips, staple, purpose, function, templates, mock-up, brief, target audience, appealing, properties, criteria, suitability, annotate, design, drawing, user, wider world	uses, materials, design, tools, purpose, function, criteria, brief, templates, mock up, target audience, appealing, properties, suitability, annotate, user	uses, materials, design, tools, purpose, function, criteria, brief, templates, mock up, target audience, appealing, properties, suitability, annotate, reinforcing, stiffening and strengthening techniques, sustainability, footprint, allergy, organic, fair trade, farmed, wild, reared caged/uncaged, organic, processed / unprocessed	target audience, properties, suitability, annotate, reinforcing, stiffening and strengthening techniques, cross section, exploded diagram sustainability, footprint, allergy, organic, farmed, wild, reared caged/uncaged, organic, processed / unprocessed, market research, seasonal, consumption, resources, portion, prototypes

MAKE							
<i>Some statements are repeated in the technical skills section of the progression document</i>							
	Development Matters	KS1 National Curriculum -Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics		KS2 National Curriculum -Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately - Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities			
	EYFS	Y1	Y2	Y3	Y4	Y5	
KNOWLEDGE	<ul style="list-style-type: none"> Construct with a purpose, using a variety of resources Use simple tools and techniques Build / construct with a wide range of objects Select tools & techniques to shape, assemble and join Replicate structures with materials / components Discuss how to make an activity safe and hygienic Record experiences by drawing, writing, voice recording Understand different media can be combined for a purpose 	<ul style="list-style-type: none"> Explain what I'm making and why Consider what I need to do next Select tools/equipment to cut, shape, join, finish and explain choices Measure, mark out, cut and shape, with support Choose suitable materials and explain choices Try to use finishing techniques to make product look good Work in a safe and hygienic manner 	<ul style="list-style-type: none"> explain what I am making and why it fits the purpose Make suggestions as to what I need to do next. Join materials/components together in different ways Measure, mark out, cut and shape materials and components, with support. Describe which tools I'm using and why Choose suitable materials and explain choices depending on characteristics. Use finishing techniques to make product look good Work safely and hygienically 	<ul style="list-style-type: none"> Select suitable tools/equipment, explain choices; begin to use them accurately Select appropriate materials, fit for purpose. Work through plan in order Consider how good product will be Begin to measure, mark out, cut and shape independently Materials/components with some accuracy Assemble, join and combine materials and components with some accuracy Apply a range of finishing techniques with some accuracy 	<ul style="list-style-type: none"> Select suitable tools and equipment, explain choices in relation to required techniques and use accurately Select appropriate materials, fit for purpose; explain choices Work through plan in order. Realise if product is going to be good quality Measure, mark out, cut and shape materials/components with some accuracy independently Assemble, join and combine materials and components with some accuracy Apply a range of finishing techniques with some accuracy 	<ul style="list-style-type: none"> use selected tools/equipment with good level of precision * produce suitable lists of tools, equipment/materials needed *select appropriate materials, fit for purpose; explain choices, considering functionality create and follow detailed step by-step plan explain how product will appeal to an audience mainly accurately measure, mark out, cut and shape materials/components *mainly accurately assemble, join and combine materials/components mainly accurately apply a range of finishing techniques use techniques that involve a small number of steps begin to be resourceful with practical problems 	<ul style="list-style-type: none"> Use selected tools and equipment precisely Produce suitable lists of tools, equipment, materials needed, considering constraints Select appropriate materials, fit for purpose; explain choices, considering functionality and aesthetics Create, follow, and adapt detailed step-by-step plans Explain how product will appeal to audience; make changes to improve quality Accurately measure, mark out, cut and shape materials/components Accurately assemble, join and combine materials/components Accurately apply a range of finishing techniques Use techniques that involve a number of steps Be resourceful with practical problems
VOCAB	Mix, stir, cut, pour, shape, spread	mix, stir, cut, pour, shape, spread sieve, slice, squeeze grate and peel.		mix, stir, cut, pour, shape, spread sieve, slice, squeeze grate and peel, rolling, measure, weigh, overstitch, running stitch, blanket stitch.		mix, stir, pour, shape, spread sieve, slice, squeeze grate and peel, rolling, measure, weigh, overstitch, running stitch, blanket stitch, glue gun, craft knife, adhesive, dice, boiling, sauté, fry, steam.	

Technical skills below shows progression across specific contexts.

EVALUATE

	EVALUATE						
	Development Matters	KS1 National Curriculum -Explore and evaluate a range of existing products. Evaluate their ideas and products against design criteria	KS2 National Curriculum -Investigate and analyse a range of existing products -Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work - Understand how key events and individuals in design and technology have helped shape the world				
	EYFS	Y1	Y2	Y3	Y4	Y5	Y6
	Plan, do review	Evaluate products against a brief	Evaluate products against the design criteria	Evaluate strengths and weaknesses in their design	Evaluate strengths and weaknesses in their design and manufacture	Mid project reviews. Evaluate their product for overall appeal (e.g. functionality, appearance, cost, sustainability) as well as ability to meet design criteria	Evaluation against cost, sustainability of materials, longevity, appearance, and whether it addresses previously identified design flaws in existing products.
KNOWLEDGE	<ul style="list-style-type: none"> Know that ideas don't always work or go to plan 	<ul style="list-style-type: none"> Know that ideas don't always work or go to plan (revisit) Plans can be adjusted during manufacture for a part that doesn't work 	<ul style="list-style-type: none"> Plans can be adjusted during manufacture for a part that doesn't work (revisit) Know that how effective a product is is dependent upon how it meets the brief 	<ul style="list-style-type: none"> Know that how effective a product is depends on how well it meets the brief (revisit) That existing products all have good and bad points (flaws) and meet some parts of the design criteria better than others. Begin to understand by whom, when and where products were designed Learn about some inventors/designers/engineers/chefs/manufacturers of ground-breaking products 	<ul style="list-style-type: none"> Discuss by whom, when and where products were designed Know about some inventors/designers/engineers/chefs/manufacturers of ground-breaking products Research whether products can be recycled or reused 	<ul style="list-style-type: none"> Talk about some key inventors inventors/designers/engineers/chefs/manufacturers of groundbreaking products 	<ul style="list-style-type: none"> Discuss about some key inventors inventors/designers/engineers/chefs/manufacturers of groundbreaking products To know how technology has developed over time and how this has changed people's way of life (History link)
		<p>Specific to food and nutrition</p> <ul style="list-style-type: none"> Know that food can be evaluated for taste 	<p>Specific to food and nutrition</p> <ul style="list-style-type: none"> Know that food can be evaluated for taste 	<p>Specific to food and nutrition</p> <ul style="list-style-type: none"> Know that food can be evaluated for taste, appearance, smell and nutritional value 	<p>Specific to food and nutrition</p> <ul style="list-style-type: none"> Know that food can be evaluated for taste, appearance, smell and nutritional value 	<p>Specific to food and nutrition</p> <ul style="list-style-type: none"> For food to be appealing it needs to balance the senses: food can be evaluated for, appearance, smell, taste, nutritional value (Y1-4) and balance (sweet, sour, salty, bitter, spicy) 	<p>Specific to food and nutrition</p> <ul style="list-style-type: none"> For food to be appealing it needs to balance the senses: food can be evaluated for, appearance, smell, taste, nutritional value (Y1-4) and balance (sweet, sour, salty, bitter, spicy)
SKILLS	<p>DURING</p> <ul style="list-style-type: none"> Talk about how things work Identify problems as they are happening Know when to ask for help and when an idea needs to change to create a finished product Adapt work if necessary Dismantle, examine, talk about existing objects/structures 	<p>BEFORE</p> <ul style="list-style-type: none"> Evaluate existing products and identify what is good and what could be improved (before) 	<p>BEFORE</p> <ul style="list-style-type: none"> Evaluate existing products for how well they were in relation to intended purpose Evaluate existing products against design criteria set and identify what is good and what could be improved 	<p>BEFORE</p> <ul style="list-style-type: none"> Evaluate existing products for how well they work in relation to their intended purpose and against the design criteria (revisit) Identify flaws in designs of existing products Identify the work of relevant designers / inventors in the creation of the original product Consider the views of others to improve their work 	<p>BEFORE</p> <ul style="list-style-type: none"> Evaluate the extent to which existing products meet their intended purpose and against the design criteria (revisit) Identify the work of relevant designers / inventors in the creation of the original product (different designer to Y3) Consider the views of others to improve their work 	<p>BEFORE</p> <ul style="list-style-type: none"> Evaluate the extent to which existing products meet their intended purpose Investigate how much products cost to make and how innovative products are in meeting the user's needs. Investigate the sustainability of materials used in existing products and whether this creates a flaw or appeal Identify the work of relevant designers / inventors in the creation of the original product and use this to influence their work 	<p>BEFORE</p> <ul style="list-style-type: none"> Evaluate the extent to which existing products meet their intended purpose (Y2-4) including cost, innovation and sustainability Identify some of the people who are responsible for significant technological advancements Identify how the product they are studying has brought about changes in the world (both good and bad) Collect and use the views of others to shape the manufacture process
		<p>DURING</p> <ul style="list-style-type: none"> With help and advice, change part of the design in response to a problem (during) 	<p>DURING</p> <ul style="list-style-type: none"> Independently, change part of the design in response to a problem 	<p>DURING</p> <ul style="list-style-type: none"> Consider different options when attempting to solve a problem in manufacture Consider the views of others to improve their work 	<p>DURING</p> <ul style="list-style-type: none"> Consider different options when attempting to solve a problem in manufacture (Y3) identifying which solution will work best and why 	<p>DURING</p> <ul style="list-style-type: none"> Consider different options when attempting to solve a problem in manufacture identifying which solution will work best and why Identify the impact that each change will have on the ability to meet the design criteria Evaluate the manufacture against the design as part of a planned evaluation time (mid project review) and use this to make adjustments to the plan/manufacture as required 	<p>DURING</p> <ul style="list-style-type: none"> Consider different options when attempting to solve a problem in manufacture (Y3) identifying the impact that each change will have on the ability to meet the design criteria (Y5) Engage in constant review against design criteria during the manufacture of the product
	<p>AFTER</p> <ul style="list-style-type: none"> Take part in a class (verbal) evaluation about a product identifying what they liked and one thing to improve 	<p>AFTER</p> <ul style="list-style-type: none"> Discuss reasons for any changes to initial design – including why they were needed (after) Identify good features of a product and suggest improvements (after) Evaluate if the product meets the brief (after) Talk about things that other people have made (after) 	<p>AFTER</p> <ul style="list-style-type: none"> Discuss reasons for any changes to initial design – including why they were needed Explain how their product works and identify whether they have met the design criteria Identify successes, improvements and what they have learned 	<p>AFTER</p> <ul style="list-style-type: none"> Explain how their product works and (Y2) evaluate how well their product meets the overall design criteria, using this to identify strengths and improvements. Evaluate their finished products for overall functionality and appearance (cooking: appearance, smell and nutritional value). 	<p>AFTER</p> <ul style="list-style-type: none"> Evaluate how well their product meets each part of the design criteria, using this to identify strengths and improvements in both the design and manufacture stage Identify the impact of any changes to the design on the finished product on functionality and appearance (or in cooking: smell, taste, appearance, nutrition) 	<p>AFTER</p> <ul style="list-style-type: none"> Explain how their product works and evaluate how well their product meets each part of the design criteria, using this to identify strengths and improvements in both the manufacture and the design stage Evaluate their products for overall appeal: functionality, appearance, cost, footprint and sustainability (in cooking seasonality and cost to health) Collect and respond to the views of others when evaluating their product 	<p>AFTER</p> <ul style="list-style-type: none"> To be able to give balanced feedback to others about their product including strengths in meeting the design criteria and improvements that could be made Evaluate their product in terms of its overall appeal, factoring in: cost and sustainability of materials, longevity, appearance, and whether it addresses previously identified design flaws in existing products. (cooking: taste and balance, cost, availability sustainability, health and nutrition)
VOCAB	Change, idea	Change, idea, improve	Change, idea, improve	Designer, flaws,	Designer, flaws, Investigate, manufacture, extent	Designer, flaws investigate, manufacture, extent, planned review	Designer, flaws investigate, manufacture, extent, planned review

MAKE: TECHNICAL SKILLS

Some statements are repeated in previous sections of the progression document

		Development Matters		KS1 National Curriculum Technical knowledge -Build structures, exploring how they can be made stronger, stiffer and more stable explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products		KS2 National Curriculum Technical knowledge -Apply their understanding of how to strengthen, stiffen and reinforce more complex structures -Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] -Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] -Apply their understanding of computing to program, monitor and control their products.			
		EYFS	Y1	Y2	Y3	Y4	Y5	Y6	
Materials / Structures		<ul style="list-style-type: none"> Construct with a purpose using a variety of resources Join materials e.g. using glue, staple, cello tape, masking tape, paperclip, split pin Replicate structures with materials / components Use a template to draw around Use scissors to cut along a straight and curved lines Use hole punches to create holes Build structures joining components together Explain how they will join the materials of their choice Select and name the tools they need Explain what they are making and which materials they are using Discuss how to make an activity safe 	<p>Mini Unit Materials: Junk Modelling Houses</p> <ul style="list-style-type: none"> know that materials can be joined together in different ways (EYFS) that some methods create a more permanent joins than others (e.g. temporary: paperclips, tape, permanent: glue, staples, running stitch) know that tools need to be handled safely. That there are safety rules associated with using each tool. know that there are some techniques that can reinforce materials (how to make materials stronger, stiffer and more stable) begin to measure and join materials, with some support build simple 3D structures describe differences in materials suggest ways to make material/product stronger 	<p>Materials: Mini Greenhouses</p> <ul style="list-style-type: none"> know that there are some techniques that can reinforce materials (how to make materials stronger, stiffer and more stable) e.g. folding, layering, joining and rolling describe some different characteristics of materials in relation to properties of materials (linked to Science learning) Choose suitable materials and explain choices depending on characteristics. measure materials join materials in different ways use own ideas and techniques such as joining, rolling or folding to reinforce a product and make it stronger Handle tools safely Describe which tools I'm using and why <p style="border: 1px solid black; padding: 2px;">Inventor to study: Isambard Kingdom Brunel</p>	<p>Materials and Structure: Build a bridge</p> <ul style="list-style-type: none"> know tools need to be handled safely. know that there are some techniques that can reinforce materials (how to make materials stronger, stiffer and more stable) such as layering and folding (Y1&2) using reinforcing strips and triangles Fold on a line, create valley and hill folds Use appropriate materials considering the intended use of the product Work accurately to make cuts and holes Measure carefully to avoid mistakes Join materials in a variety of ways, considering the intended purpose of the project Add reinforcements to joins to create a stronger structure (e.g. cardboard corner triangles for frames) <p style="border: 1px solid black; padding: 2px;">Inventor to study: Isambard Kingdom Brunel</p>		<p>Materials: Rockets</p> <ul style="list-style-type: none"> know that for some materials, some adhesives are more effective than others know that materials can be joined together in different ways e.g. glue, staple, pin (EYFS-Y2) sewing (Y3&4). know tools need to be handled safely. Focus on those not previously covered e.g. saws, strong adhesives, wood glue, fabric glue, craft knives / craft scissors, pliers and wire cutters to cut and mould wire Add reinforcements to joins to create a stronger structure (e.g. cardboard corner triangles for frames) to ensure the product is fit for purpose Select materials carefully, considering intended use of the product, the aesthetics and functionality. Be resourceful when faced with challenges and problems Measure accurately enough to ensure precision <p style="border: 1px solid black; padding: 2px;">Inventor to study: Robert Goddard; physicist</p>		
	Mechanisms			<p>Mechanisms: Flap Books / Moving Pictures</p> <ul style="list-style-type: none"> know how different mechanisms work and why/when they should be used (e.g. levers, sliders) Use sliders and flaps <p style="border: 1px solid black; padding: 2px;">Inventor to study: Eric Hill, inventor of lift-the-flap books (Spot the Dog)</p>	<p>Mechanisms: Create a London vehicle</p> <ul style="list-style-type: none"> know how different mechanisms work and why/when they should be used (e.g. levers, sliders, pivots, wheels, axles) Make simple moving mechanisms using wheels and axles e.g. sliders, levers, wheels <p style="border: 1px solid black; padding: 2px;">Inventor to study: Henry Ford; Mass Car production</p>	<p>Mechanisms: Create a lever system that the Egyptians could have used to help build pyramids</p> <ul style="list-style-type: none"> know how different mechanisms work and why/when they should be used (e.g. levers, sliders, wheels, axles, pivots, pneumatics, linkages and hinges) use simple lever and linkages to create movement use pneumatics to create movement select appropriate tools / techniques, considering which is the most appropriate <p style="border: 1px solid black; padding: 2px;">Inventor to study:</p>			<p>Mechanisms: Post SATs Create a moving scene from your favourite book using cams and followers</p> <ul style="list-style-type: none"> know how different mechanisms work and why/when they should be used (e.g. levers, sliders, wheels, axles, pivots, pneumatics, linkages and hinges gears, pulleys, cams) Make something move using cams, axles and / or electric circuits (e.g. using motors) Create, follow and adapt detailed step-by-step plans Incorporate hydraulics and pneumatics use cams, pulleys and gears to create movement refine product after testing, considering aesthetics, functionality and purpose <p style="border: 1px solid black; padding: 2px;">Inventor to study:</p>
				<p>Textiles: Christmas stocking</p> <ul style="list-style-type: none"> Identify different forms of textiles / fabric (e.g. felt, velvet, cotton) Choose suitable textiles Cut pieces of fabric accurately Join textiles to make a product, with some support Use different fabrics and materials in collages <p style="border: 1px solid black; padding: 2px;">Designer to study:</p>	<p>Textiles: Potential mini project</p> <ul style="list-style-type: none"> know that a 3D textile structure can be made from two identical fabric shapes. know what a running stitch is know how to handle needles and pins safely Explain choices of textile Measure textiles Carefully cut textiles to produce accurate pieces With support, thread a needle Use pins to secure two pieces of fabric Sew a simple running stitch and use this to join two pieces of fabric <p style="border: 1px solid black; padding: 2px;">Designer to study:</p>		<p>Textiles: Cross Stitch Bookmark</p> <ul style="list-style-type: none"> know that there are different types of stitches and each technique has advantages and disadvantages that should be taken into account when choosing which to use, which affects when they should be used (e.g. over stitch, running stitch, blanket stitch) understand that a simple fabric shape can be used to make a 3D textiles project Devise a simple template Choose textiles considering appearance and functionality Thread a needle Sew a simple running stitch join different textiles in different ways including backstitch and blanket stitch Use one type of stitch to join two pieces of material Think about how to make product strong explain how to join things in a different way Use a cross stitch for embroidery <p style="border: 1px solid black; padding: 2px;">Designer to study: Barthélemy Thimonnier, inventor of first sewing machine</p>	<p>Textiles: Bags for Life Save the Planet</p> <ul style="list-style-type: none"> know that there are different types of stitches and each technique has advantages and disadvantages that should be taken into account when choosing which to use, which affects when they should be used (e.g. over stitch, running stitch, blanket stitch) understand that a simple fabric shape can be used to make a 3D textiles project Think about user's wants/needs and aesthetics when choosing textiles Create and use own template Create, follow and adapt detailed step-by-step plans Make a prototype think about how to make product strong and attractive use a range of joining techniques Use the technique of scoring when folding thicker materials Use a variety of stitches over stitch, running stitch, blanket stitch to securely join two pieces of material Develop techniques for adding decorative details Apply decoration using needle and thread: buttons, sequins. <p style="border: 1px solid black; padding: 2px;">Designer to study: Waitrose was the first British supermarket to launch Bag For Life in association with British Polythene Industries. It was invented by Gini Ekstein.</p>	
Textiles									

MAKE: TECHNICAL SKILLS *continued*

Some statements are repeated in previous sections of the progression document

	Y6	Y5	Y4	Y3	Y2	Y1	EYFS
Food and Nutrition	<p>Food: Healthy Seasonal Meal Plan for an Athlete</p>	<p>Mini Experience Food: Chilli</p> <p>Food: Seasonal berry tarts and pastries (to sell)</p>	<p>Food: Gingerbread Projects</p>	<p>Food: Greek Mezze Create flatbreads, Greek Salad and Skewers</p>	<p>Mini Experience Food: Bread</p> <p>Food: Smoothies Project</p>	<p>Food: Bread / Pitta Pizzas</p>	<p>Food: Sandwiches</p>
	<ul style="list-style-type: none"> Know there are basic hygiene rules that should be followed when preparing food including the handling of raw foods (EYFS-Y4) Write and adapt an existing recipe to change the taste, texture, appearance or smell that takes into account the seasonality or availability of local produce and production of minimal waste (link Geography and sustainability) explain seasonality of foods learn about food processing methods name some types of food that are grown, reared or caught in the UK or wider world describe some of the different substances in food and drink, and how they can affect health Use ratios to adjust quantities of recipes <p style="text-align: center;">Inventor to study:</p>	<ul style="list-style-type: none"> Know that there are basic hygiene rules that should be followed when preparing food including the handling of raw foods (EYFS-Y4) That food can be cooked in a variety of ways (bake Y3&4) boil, sauté, fry, steam Understand the need for correct storage of different types of food Understand and know that garnishes can make food more attractive Discuss their own lifestyle choices and the impact this has on their health (Science living things link) Write and adapt an existing recipe to change the taste, texture, appearance or smell that takes into account the seasonality present product well - interesting, attractive, fit for purpose begin to understand seasonality of foods understand food can be grown, reared or caught in the UK and the wider world Measure ingredients using standard (e.g. weight and ml) and non-standard measurements (cups, spoons, etc) (EYFS-Y2) To mix, stir, cut, pour, shape and spread (EYFS) sieve, slice, squeeze grate, peel, roll, dice to use different cooking techniques e.g. bake, boil and saute Follow hygiene rules in preparing food e.g. washing hands, handling and preparing raw meat Follow and adapt a recipe to improve nutrition or appeal and to change the appearance, texture or balance the taste (e.g. sweet, salty, bitter, spicy) <p style="text-align: center;">Inventor to study:</p>	<ul style="list-style-type: none"> Know that there are basic hygiene rules that should be followed when preparing food (e.g. hands washed, hair up, apron on, sleeves rolled up) Know that raw food sometimes has additional hygiene rules linked to food preparation (e.g. raw meat) NB: raw meat does not have to be included in recipes to teach this. Know that food can be cooked in a variety of ways, but a heat source is always required. understand ingredients can be fresh, pre-cooked or processed begin to understand about food being grown, reared or caught in the UK or wider world explain importance of food and drink for active, healthy bodies Follow and adapt a recipe with consideration to nutrition, taste and presentation use some of the following techniques: peeling, chopping, slicing, grating, mixing, spreading, kneading and baking Measure ingredients using standard (e.g. weight and ml) and non-standard measurements (cups, spoons, etc) (EYFS-Y2) To mix, stir, cut, pour, shape and spread (EYFS) sieve, slice, squeeze grate, peel, roll, dice Follow hygiene rules Present the product in interesting/ attractive ways <p style="text-align: center;">Inventor to study:</p>	<ul style="list-style-type: none"> Know that there are basic hygiene rules that should be followed when preparing food (e.g. hands washed, hair up, apron on, sleeves rolled up) Know that raw food sometimes has additional hygiene rules linked to food preparation (e.g. raw meat) NB: raw meat does not have to be included in recipes to teach this. describe how a healthy diet involves a variety/balance of food/drinks explain how food and drink are needed for active/healthy bodies. Work through a plan in order Measure ingredients using standard (e.g. weight and ml) and non-standard measurements (cups, spoons, etc) (EYFS-Y2) To mix, stir, cut, pour, shape and spread (EYFS) sieve, slice, squeeze grate, peel, roll. Follow hygiene rules Follow (Y1&2) and adapt a recipe with consideration to nutrition, taste and presentation carefully select ingredients, thinking about the audience and purpose of the product make product look attractive think about how to grow plants to use in cooking begin to understand food comes from UK and wider world grow in confidence using some of the following techniques: peeling, chopping, slicing, grating, mixing, spreading, kneading and baking <p style="text-align: center;">Inventor to study:</p>	<ul style="list-style-type: none"> Know that there are basic hygiene rules that should be followed when preparing food (e.g. hands washed, hair up, apron on, sleeves rolled up) describe properties of ingredients and importance of varied diet say where food comes from (Animal, underground etc.) describe how food is farmed, home-grown, caught draw eat well plate; explain there are groups of food describe "five a day" Measure ingredients using non-standard measurements (cups, spoons, etc) To mix, stir, cut, pour, shape and spread sieve, slice, squeeze grate and peel. Cut, peel and grate with increasing confidence Follow instructions / set steps of a recipe Follow hygiene rules explain hygiene and keep a hygienic kitchen <p style="text-align: center;">Inventor to study:</p>	<ul style="list-style-type: none"> Know that there are basic hygiene rules that should be followed when preparing food (e.g. hands washed, hair up, apron on, sleeves rolled up) Know where some food comes from (e.g. animals) describe differences between some food groups (i.e. sweet, vegetable etc.) Cut, peel and grate safely, with support Food Hygiene: Wash hands & clean surfaces <p style="text-align: center;">Inventor to study:</p>	<ul style="list-style-type: none"> Begin to understand some food preparation tools, techniques and processes Practise stirring, mixing, pouring, blending To mix, stir, cut, pour, shape and spread Measure ingredients using non-standard measurements (cups, spoons, etc.) Discuss use of senses Understand need for variety in food Begin to understand that eating well contributes to good health Wash their hands before cooking Discuss how to make an activity hygienic Know that hands can carry germs and should be washed before handling food <p style="text-align: center;">Inventor to study:</p>
Electrical Systems	<p>Electrical Systems (Materials): TinkerCAD alarmed bunker</p> <ul style="list-style-type: none"> use different types of circuit in product (simple, series) understand and use a range of components in a circuit including, lights and buzzers incorporate switch into product Apply their understanding of computing to program, monitor and control their products <p style="text-align: center;">Inventor to study:</p>		<p>Electrical Systems: Light up Signs</p> <ul style="list-style-type: none"> Know that a computer program can be used to control product <i>linked to coding in computing</i> Use a simple circuit in a product incorporate switch into product <p style="text-align: center;">Inventor to study:</p>				

Link to other technical skills and making skills from the progression

