



Ambition - Community - Equality

Curriculum Overview

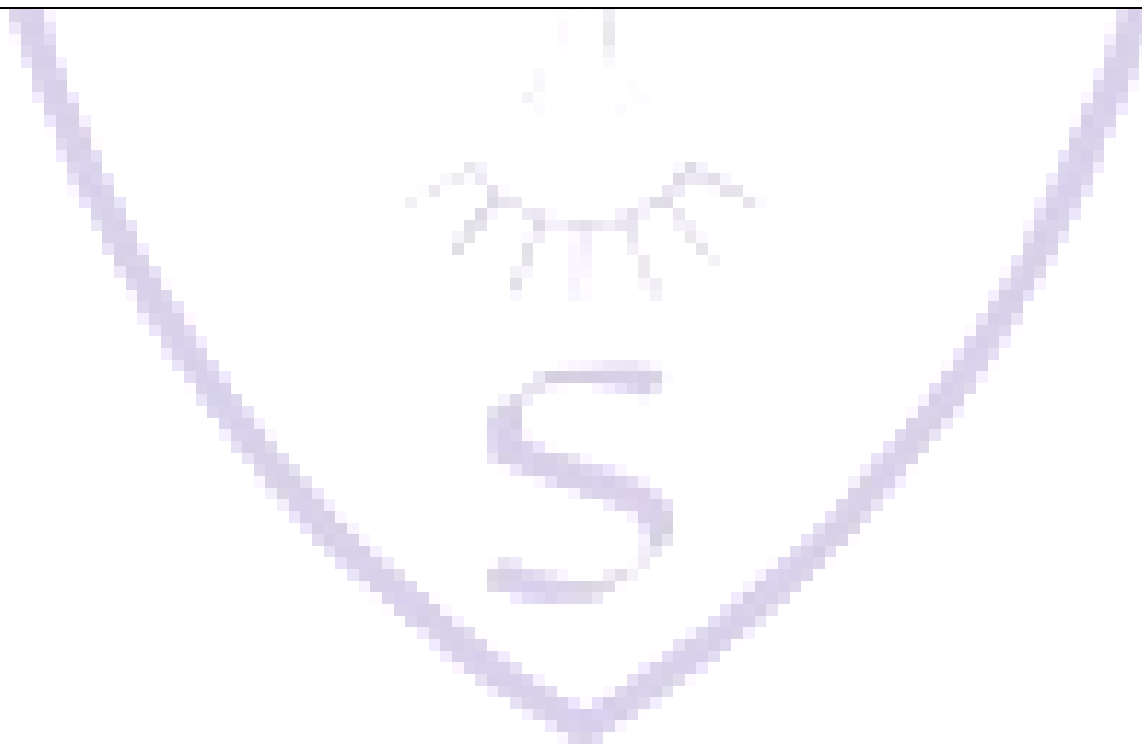
Subject: DT

E.Y.F.S Outcomes linked to National Curriculum Subjects: Nursery

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Can you sing your favourite nursery rhyme?	What makes a good friend?	What colours can I see around me?	Which pet will I choose?	What is your favourite food?	Can you tell me a story?
-I can explore different toys -I can eat by myself	-I can explore different toys -I can choose food I like	-I can choose & use different materials -I can respond to simple questions about materials I use (hard/soft, shiny)	-I can choose from different materials to make something on my own -I can use scissors to snip with some control	-I can watch an adult prepare food -I can say I need to wash my hands before I eat -I can name some common foods	-I can make a simple structure and know it can break

E.Y.F.S Outcomes linked to National Curriculum Subjects: Reception

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
What makes me great?	When do we celebrate?	Where do I live?	What job do I want to have?	How do things grow?	How do we get there?
-I can explore different toys and how they move	-I can talk about food used in celebrations -I can begin to use simple equipment to stir with control-making a celebration food	-I can design a building I can experiment with joining different materials (glue, masking tape) I can use a range of materials and toys to make my building		-I can say that some food is grown from a seed. -I can see that some food is from animals	-I can explore different ways of making things move





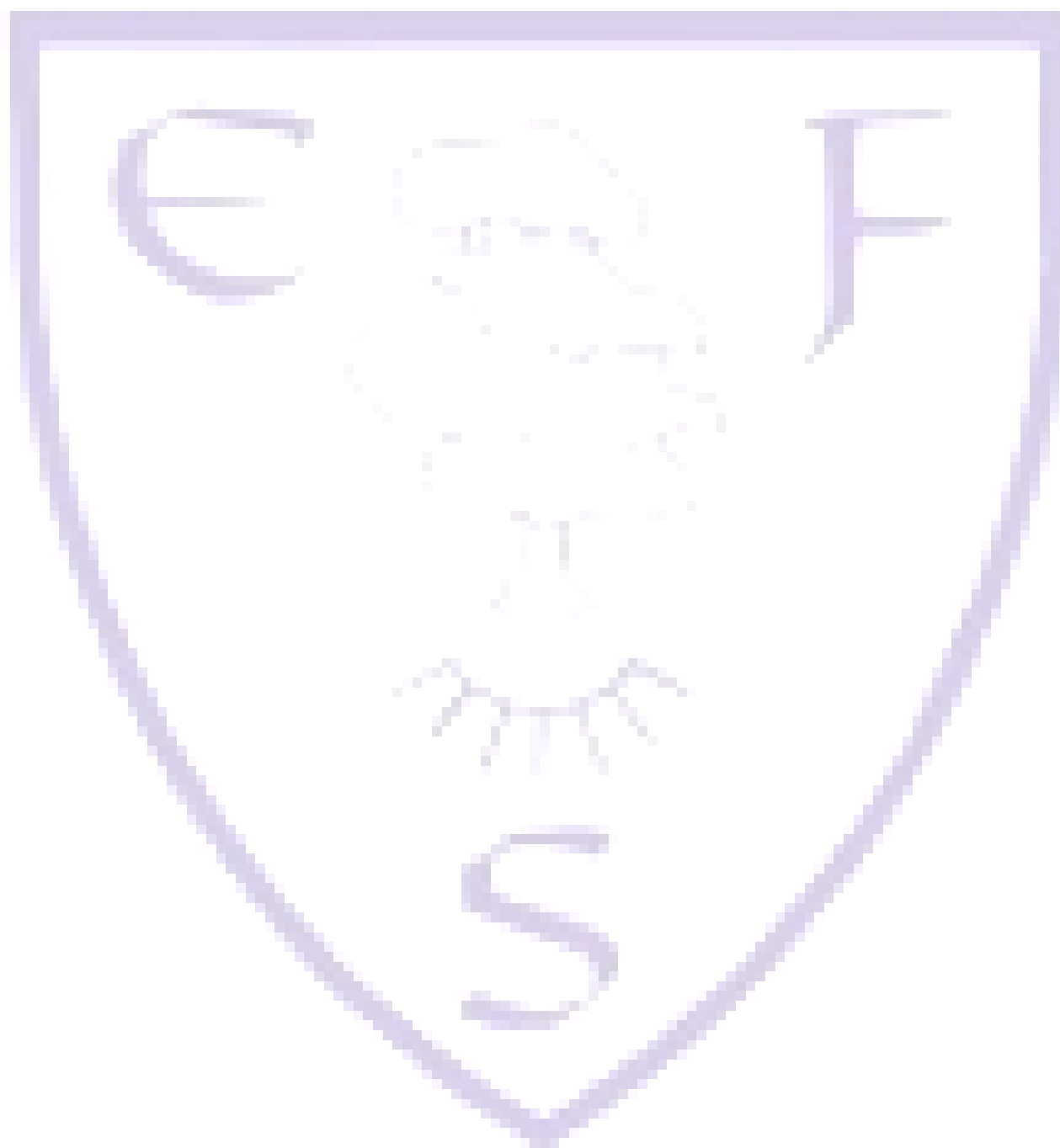
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Subject: DT

	Autumn 2	Spring	Summer 1
Y1	What is in the world around me?	How do we know Birmingham and London cities?	Do all Superheroes have capes?
Project	<u>Mechanical systems</u> Making a moving animal picture for a story/non-fiction book	<u>Mechanical systems</u> Making a moving fire engine toy for a reception child	<u>Food and nutrition</u> Understand where food comes from (double page spread in Topic books)
N/C objectives	<p><u>Design</u></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><u>Make</u></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><u>Evaluate</u></p> <ul style="list-style-type: none"> explore and evaluate a range of existing products evaluate their ideas and products against design criteria 		
	<p><u>Technical</u> Explore and use mechanisms (levers and sliders) in their products</p>	<p><u>Technical</u> Explore and use mechanisms (wheels and axels) in their products</p>	<p><u>Food and nutrition</u> Understand where food comes from</p>
Design - Understanding contexts, users and purposes	<p>I can describe who and what my product is for</p> <p>I can say how I will make my product suitable for the user (with support)</p> <p>I am beginning to use my knowledge of existing products to help come up with my own ideas and develop these through talking and drawing</p> <p>I can use given design criteria to develop my ideas</p>		
Design - Generating, developing, modelling and communicating ideas	I can model ideas by exploring materials	I can model ideas by exploring materials and components	

Make – Planning	I can plan by suggesting what to do next		
Make - Practical skills and techniques	I am beginning to select from a range of tools and equipment, explaining my choices with support (hole punch and stapler) I can select from a range of materials and components according to their characteristics (paper, card, split pins, staple or sticky tape) I can mark out, cut and shape materials and components (using a template) I can use finishing techniques, including those from art and design	I am beginning to select from a range of tools and equipment, explaining my choices with support (hand saw and bench hook) I can assemble, join and combine materials and components (doweling and wooden disks) I can measure, mark out and cut materials and components (using a template that is the correct size)	
Evaluate - existing products	I can evaluate existing products by saying what I like and dislike about them and who and what the product is for I can identify what materials products are made from		
Evaluate - own ideas and products	I can make simple judgements about my product and ideas against design criteria and suggest how it could be improved I can make simple judgements about their products and ideas against design criteria		
Concrete knowledge - Technical knowledge	Know about the simple working characteristics of materials and components (card, paper, sticky tape and split pins) Know about the movement of simple mechanisms such as levers and sliders	Know about the movement of simple mechanisms such wheels and axles	Know where food comes from (milk, flour, vegetables, fruit, meat)
Vocabulary	sliders, levers, movement, mechanism, split pin, hole punch, staple, join, design, evaluate, direction, pivot, label, length	Mechanism, axel, wheel, hand saw, bench hook, doweling, wooden disk, chassis, axis, axle holder	farm, field, wheat, animals, plants, crops, grind, windmill, mill





Curriculum Overview

Subject: DT

	Autumn	Summer 1	Summer
Y2	Why should I go to Sheldon?	Why do we visit the seaside?	Why do we visit the seaside?
Project	<u>Structures</u> Make a prototype of a playground to go in the local park	<u>Summer 1 - Food and nutrition</u> Understand basic principles of a healthy and varied diet (double page spread in Science books) <u>Summer 1 - Graphics</u> Design and make a mock-up of a hedgehog garden habitat – linked to science habitats	<u>Textiles</u> Create a seaside themed puppet for a puppet show
N/C objectives	<u>Design</u> <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 <u>Make</u> <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 <u>Evaluate</u> <ul style="list-style-type: none"> explore and evaluate a range of existing products evaluate their ideas and products against design criteria 		
	<u>Technical</u> Build structures, exploring how they can be made stronger, stiffer and more stable	<u>Food and nutrition</u> Use the basic principles of a healthy and varied diet. (covered in Science Summer 1)	
Design - Understanding contexts, users and purposes	I can describe who and what my product is for I can say how I will make my product suitable for the user I can use my knowledge of existing products to help come up with my own ideas and develop these through talking and drawing I can use given design criteria to develop my ideas		
Design - Generating,	I can model ideas by exploring materials and components and construction kits and by making a mock-up		

developing, modelling and communicating ideas				
Make - Planning	<p>I can plan by suggesting what to do next</p> <p>I can select from a range of tools, materials and components according to their characteristics (pipe cleaners, straws, card, paper, sticky tape, blue tac and split pins – <i>a wider range than year 1</i>) and explain my choices</p>	<p>I can choose materials and explain why they are being used depending on their characteristics (graphics)</p> <p>I can draw and label a plan</p> <p>I can make a mock-up to show what my garden would look like</p>	<p>I can model ideas by exploring materials and components and by making templates and mock- ups</p>	
Make - Practical skills and techniques	<p>I can measure, mark out, cut and shape materials and components (using a ruler to the nearest centimetre)</p> <p>I can assemble, join and combine materials and components</p>			<p>I can plan by suggesting what to do next</p> <p>I can select from a range of tools, materials and components according to their characteristics (needles, staples and sticky tape – <i>a wider range than year 1</i>) and explain my choices</p>
Evaluate - own ideas and products	<p>I can make simple judgements about my product and ideas against design criteria and suggest how it could be improved</p> <p>I can make simple judgements about their products and ideas against design criteria</p>			
Evaluate - existing products	<p>I can evaluate existing products by saying what I like and dislike about them, who and what the product is for, how the product works and how and where they might be used</p> <p>I can identify what materials products are made from</p>			
Concrete knowledge - Technical knowledge	<p>Know about the simple working characteristics of materials and components (pipe cleaners, straws, card, paper, sticky tape, blue tac and split pins)</p>		<p>Know what a healthy diet is (food)</p>	<p>Know that a 3-D textiles product can be assembled from two identical fabric shapes</p>

	Know how freestanding structures can be made stronger, stiffer and more stable			
Vocabulary	sturdy, stable, framework, movement, structure, weak, strong, on top of, underneath, side, edge, surface, thinner, thicker, corner, point, symmetrical, straight, curved		plan, design, plan view, materials, mock-up, model	join, fix, sewing needles, template, fabric, cutting out, sewing, needle, running stitch, gluing, seam, stitch, thread



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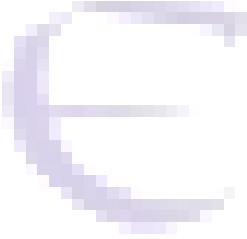
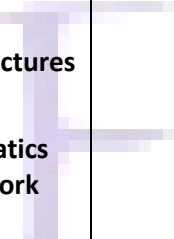
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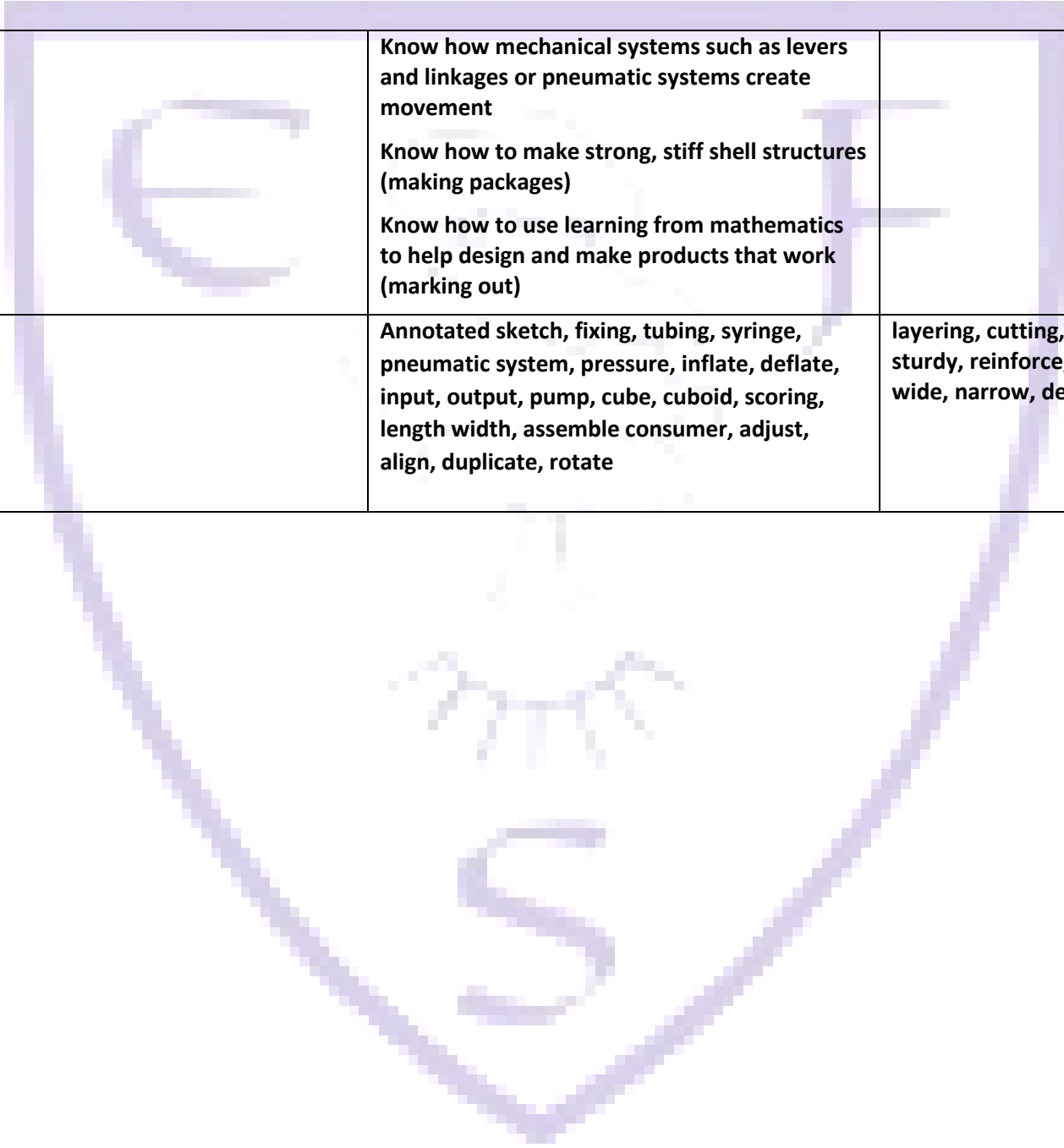
Subject: DT

	Spring term	Summer 1	Spring term
Y3	Stone Age to Iron Age: How did Britain change?	Why is Greece popular?	Stone Age to Iron Age: How did Britain Change?
Project	<p>Food and nutrition Understand and know where and how a variety of ingredients are reared (double page spread in Topic)</p>	<p>Mechanical systems (Make a moving toy using pneumatics linked to inventor)</p> <p>Measuring and marking out using a ruler to make packaging for my toy (Design using CAD)</p> <p>Inventors (Science double page spread) Hero of Alexandria/Otto Von Guericke - history of pneumatics</p>	<p>Structures Making a photo frame for a holiday photo</p>
N/C objectives	<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 		
	Food and nutrition	Mechanical systems Understand and use mechanical systems in their products [for	Structures

	Understand and know where and how a variety of ingredients are reared	example, gears, pulleys, cams, levers and linkages]	Apply their understanding of how to strengthen, stiffen and reinforce more complex structures
Design - Understanding contexts, users and purposes	I can describe the purpose of my product I can indicate the design features of my products that will appeal to intended users I can explain how particular parts of my product work I can gather information about the needs and wants of particular individuals and groups I can develop my own design criteria and use these to inform my ideas		
Design - Generating, developing, modelling and communicating ideas	I can share and clarify ideas through discussion	I can use annotated sketches to develop and communicate my ideas I can use computer-aided design to develop and communicate my ideas I can generate realistic ideas, focusing on the needs of the user I can make design decisions that take account of the availability of resources	I can use annotated sketches to develop and communicate my ideas I can generate realistic ideas, focusing on the needs of the user I can make design decisions that take account of the availability of resources
Make - Planning		I can select and explain my choice of tools and equipment in relation to the skills and techniques they will be using I can select and explain their choice of materials and components according to functional properties and aesthetic qualities (syringes, plastic tubes) I can order the main stages of making	I can select and explain my choice of tools and equipment in relation to the skills and techniques they will be using I can select and explain their choice of materials and components according to functional properties and aesthetic qualities (functional properties: paper, card, cardboard tubes, glue, staples. Aesthetic qualities: paint, felt pens, pencil crayons)
Make - Practical skills and techniques		I can follow procedures for safety and hygiene I can measure, mark out, cut and shape materials and components with some accuracy	I can follow procedures for safety and hygiene I can measure, mark out, cut and shape materials and components with some accuracy

		<p>I can assemble, join and combine materials and components with some accuracy</p> <p>I can score card to make a fold</p> <p>I can mark out squares and rectangles using a ruler to create a template (for packaging)</p>	<p>I can assemble, join and combine materials and components with some accuracy</p> <p>I can apply a range of finishing techniques, including those from art and design, with some accuracy</p>
Evaluate - existing products	<p>I can investigate and analyse:</p> <ul style="list-style-type: none"> • how well products have been designed • how well products have been made • why materials have been chosen • what methods of construction have been used • how well products work • how well products achieve their purposes • how well products meet user needs and wants <p>I can investigate and analyse:</p> <ul style="list-style-type: none"> • who designed and made the products • where products were designed and made • when products were designed and made • whether products can be recycled or reused 		
Evaluate - own ideas and products	<p>I can identify the strengths and areas for development in my ideas and products</p> <p>I can consider the views of others, including intended users, to improve my work</p> <p>I can refer to my design criteria as I design and make and to evaluate my completed product</p>		
Concrete knowledge - Technical knowledge		<p>Know how to use learning from science to help design and make products that work</p> <p>Know how to use learning from mathematics to help design and make products that work (measuring to make packaging)</p>	<p>Know that materials have both functional properties and aesthetic qualities</p> <p>Know that materials can be combined and mixed to create more useful characteristics</p>

		<p>Know how mechanical systems such as levers and linkages or pneumatic systems create movement</p> <p>Know how to make strong, stiff shell structures (making packages)</p> <p>Know how to use learning from mathematics to help design and make products that work (marking out)</p>	
Vocabulary		<p>Annotated sketch, fixing, tubing, syringe, pneumatic system, pressure, inflate, deflate, input, output, pump, cube, cuboid, scoring, length width, assemble consumer, adjust, align, duplicate, rotate</p>	<p>layering, cutting, finish, board, stiffen, frame, sturdy, reinforce, quality, distance, near, close, wide, narrow, deep, shallow, thick, thin, hinge,</p>





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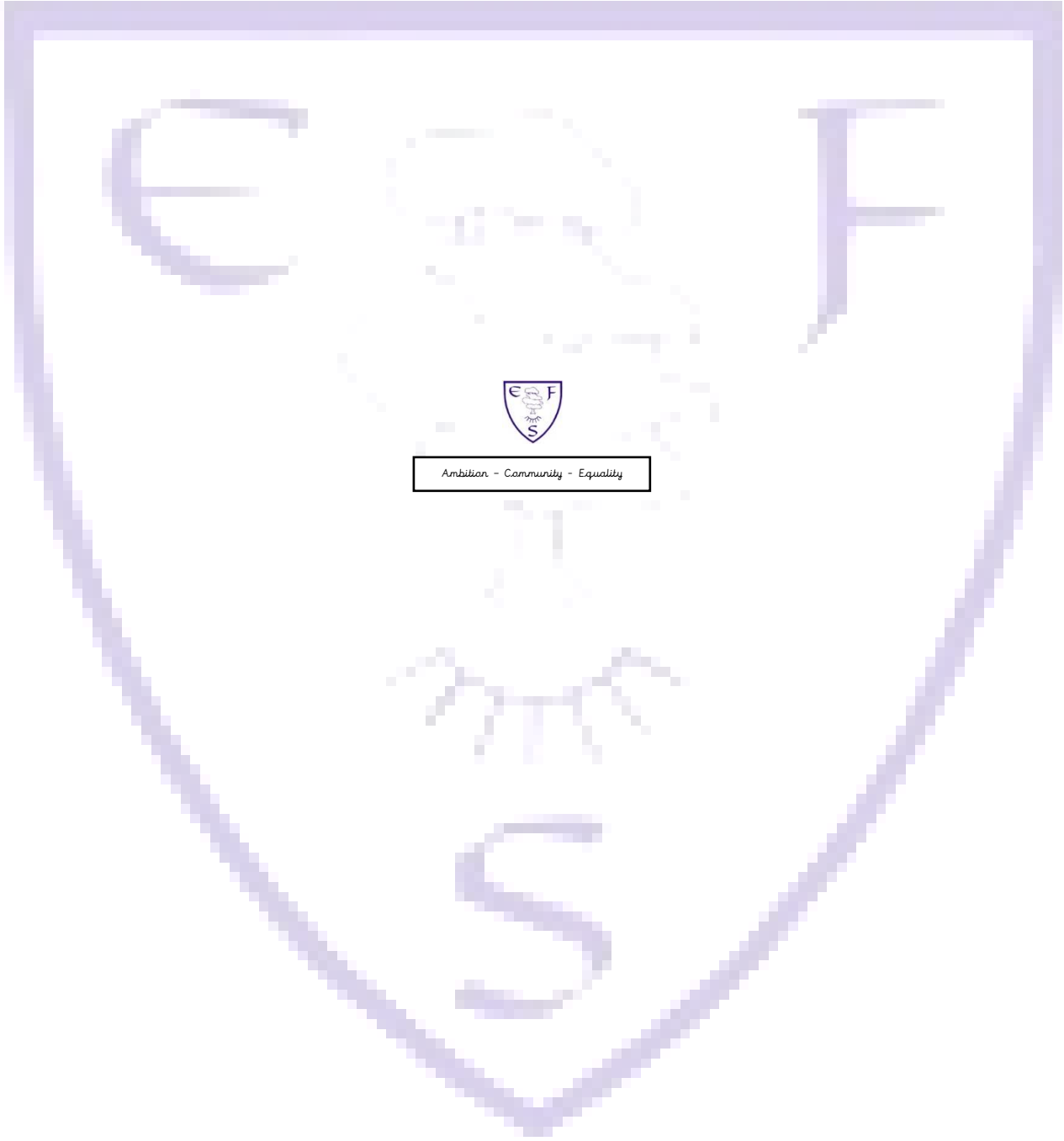
Subject: DT

	Autumn 2	Spring 2	Summer 1
Y4	What did the Romans do for us?	Why was Britain invaded by the Saxons and Vikings?	What is a biome? Why are rainforests and oceans important to our lives?
Project	<u>Inventors</u> (Science double page spread) Thomas Edison and the invention of the telephone	<u>Textiles</u> Make a product to carry money (Relate to Viking or Anglo-Saxon)	<u>Electrical systems</u> Create a motor boat to travel across the Great Barrier Reef <u>Food and nutrition</u> Understand and know where and how a variety of ingredients are caught (double page spread in Topic)
N/C objectives	<u>Design</u> <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 <u>Make</u> <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 <u>Evaluate</u> <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 		
			<u>Electrical systems</u> Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]

			<p><u>Food and nutrition</u></p> <p>Understand and know where and how a variety of ingredients are caught (double page spread in Topic)</p>
Design - Understanding contexts, users and purposes	<p>I can describe the purpose of my product</p> <p>I can indicate the design features of my products that will appeal to intended users</p> <p>I can explain how particular parts of my product work</p> <p>I can gather information about the needs and wants of particular individuals and groups</p> <p>I can develop my own design criteria and use these to inform my ideas</p>		
Design - Generating, developing, modelling and communicating ideas		<p>I can model my ideas using prototypes and pattern pieces</p> <p>I can use annotated sketches to develop and communicate my ideas</p> <p>I can generate realistic ideas, focusing on the needs of the user</p> <p>I can make design decisions that take account of the availability of resources</p>	<p>I can use exploded diagrams to develop and communicate my ideas</p> <p>I can generate realistic ideas, focusing on the needs of the user</p> <p>I can make design decisions that take account of the availability of resources</p>
Make - Planning		<p>I can select and explain their choice of materials and components according to functional properties and aesthetic qualities</p> <p>I can order the main stages of making</p>	<p>I can order the main stages of making</p>

<p>Make - Practical skills and techniques</p>		<p>I can follow procedures for safety and hygiene</p> <p>I can measure, mark out, cut and shape materials and components with some accuracy (make a paper pattern)</p> <p>I can assemble, join and combine materials and components with some accuracy (using running stitch and backstitch and oversew)</p> <p>I can sew on a button</p> <p>I can apply a range of finishing techniques, including those from art and design, with some accuracy</p>	<p>I can follow procedures for safety and hygiene</p> <p>I can assemble, join and combine materials and components with some accuracy</p>
<p>Evaluate - existing products</p>	<p>I can investigate and analyse:</p> <ul style="list-style-type: none"> • how well products have been designed • how well products have been made • why materials have been chosen • what methods of construction have been used • how well products work • how well products achieve their purposes • how well products meet user needs and wants <p>I can investigate and analyse:</p> <ul style="list-style-type: none"> • who designed and made the products • where products were designed and made • when products were designed and made • whether products can be recycled or reused 		
<p>Evaluate - own ideas and products</p>	<p>I can identify the strengths and areas for development in my ideas and products</p> <p>I can consider the views of others, including intended users, to improve my work</p> <p>I can refer to my design criteria as I design and make and to evaluate my completed product</p>		
<p>Concrete knowledge - Technical knowledge</p>		<p>Know how to use learning from mathematics to help design and make products that work</p>	<p>Know how to use learning from science to help design and make products that work</p>

		<p>(measuring and marking out to make a paper template)</p> <p>Know that materials have both functional properties and aesthetic qualities</p> <p>Know that materials can be combined and mixed to create more useful characteristics</p> <p>Know that a single fabric shape can be used to make a 3D textiles product</p>	<p>Know that materials can be combined and mixed to create more useful characteristics</p> <p>Know that mechanical and electrical systems have an input, process and output</p> <p>Know how simple electrical circuits and components can be used to create functional products</p> <p>Know where and how a variety of ingredients are caught</p>
Vocabulary		<p>Annotated sketch, fabric, pattern/templates, strength, weaknesses, accurate, finishing, fastening, zip, press stud, buckle, seam, seam allowance, reinforce, embroidery, hardwearing, stretch, fray, cross stitch, backstitch</p>	<p>exploded diagram, propellers, motors, switches, circuit, electricity, battery, water resistant, sturdy, series circuit, connection, insulator, conductor, wire, crocodile clip, current</p>



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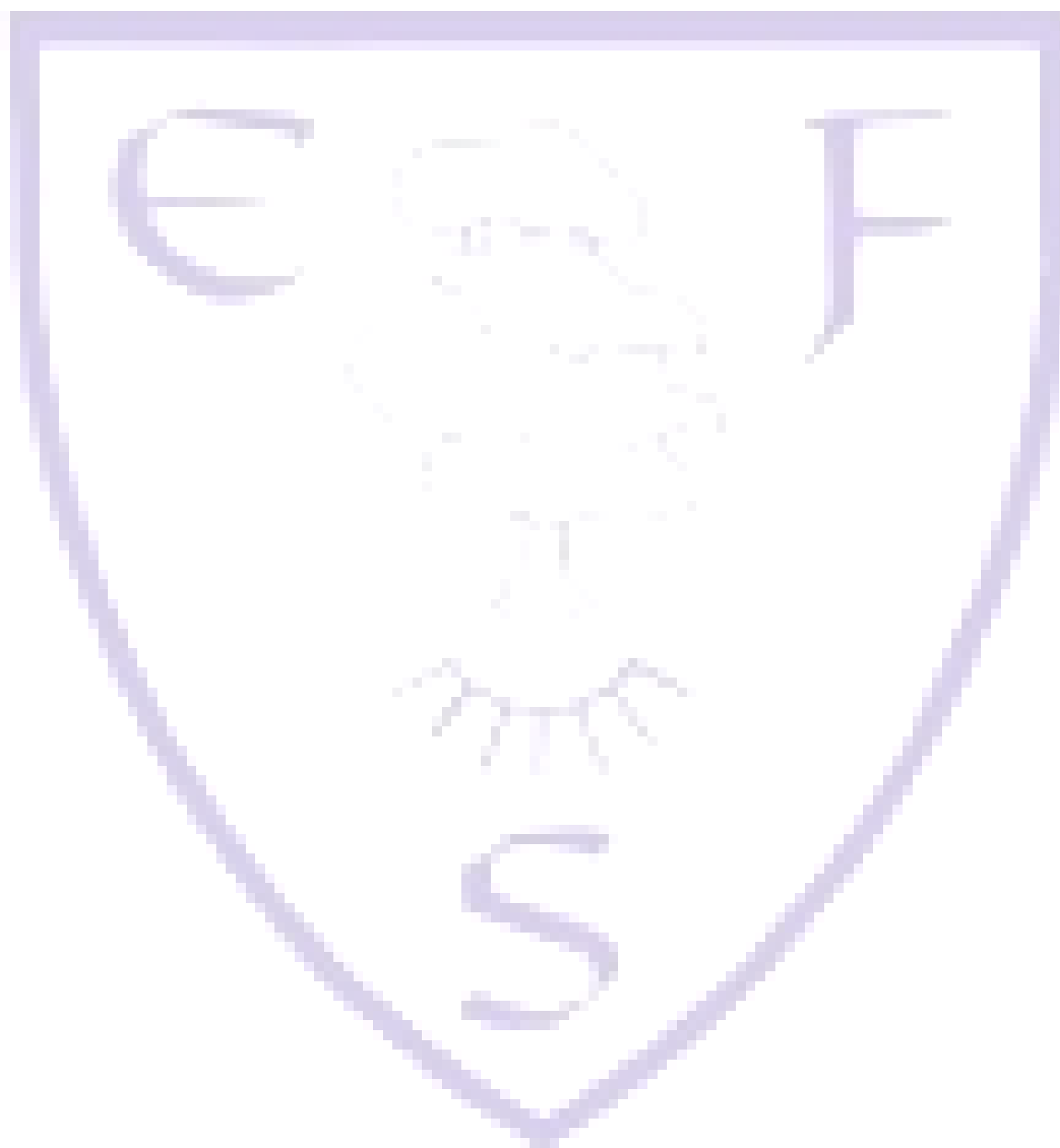
Subject: DT

	Autumn 2	Summer 1	Spring 2	Summer 2
Y5	What is a river's journey?	What were the achievements of the Ancient Egyptians?	Why does the USA have different climate zones?	What were the achievements of the Ancient Egyptians?
Project	<u>Textiles</u> Make a Christmas decoration with applique design	<u>Mechanical systems</u> Cams Making an 'American inspired' moving toy	<u>Food and nutrition</u> Understand seasonality, and know where and how a variety of ingredients are grown (double page spread in topic books)	<u>Programming-</u> Design a gadget that can that either responds to changes in light level or temperature <u>Inventors</u> (Science double page spread) Margret Hamilton's invention of the software and computer code that enabled Apollo 11 to go to the Moon
N/C Objectives		<u>Mechanical systems</u> Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]	<u>Food and nutrition</u> Understand and know where and how a variety of ingredients are grown (double page spread in Topic) Understand seasonality	<u>Computing</u> Apply their understanding of computing to program, monitor and control their products

<p>Design - Understanding contexts, users and purposes</p>	<p>I can describe the purpose of their products</p> <p>I can indicate the design features of their products that will appeal to intended users</p> <p>I can explain how particular parts of their products work carry out research, using surveys, interviews, questionnaires and web-based resources</p> <p>I can identify the needs, wants, preferences and values of particular individuals and groups</p> <p>I can develop a simple design specification to guide my thinking</p>			
<p>Design - Generating, developing, modelling and communicating ideas</p>	<p>I can model my ideas using prototypes and pattern pieces (mark out using a ruler and create pattern pieces)</p> <p>I can generate innovative ideas, drawing on research</p> <p>I can use annotated sketches to develop and communicate my ideas</p>	<p>I can use exploded diagrams to develop and communicate my ideas</p>		<p>I can make design decisions, taking account of constraints such as time, resources and cost</p>
<p>Make - Planning</p>	<p>I can select tools, materials and equipment suitable for the task</p> <p>I can explain their choice of tools and equipment in relation to the skills and techniques they will be using</p> <p>I can produce appropriate lists of tools, equipment and materials that I will need</p> <p>I can formulate step-by-step plans as a guide to making</p>	<p>I can select tools, materials and equipment suitable for the task</p> <p>I can explain their choice of tools and equipment in relation to the skills and techniques they will be using</p> <p>I can produce appropriate lists of tools, equipment and materials that I will need</p> <p>I can formulate step-by-step plans as a guide to making</p>		<p>I can produce appropriate lists of tools, equipment and materials that I will need</p> <p>I can formulate step-by-step plans as a guide to making</p>

<p>Make - Practical skills and techniques</p>	<p>I can follow procedures for safety and hygiene</p> <p>I can accurately measure, mark out, cut and shape materials and components (make a paper pattern)</p> <p>I can accurately assemble, join and combine materials and components</p> <p>I can accurately apply a range of finishing techniques, including those from art and design (applique, embroidery, backstitch)</p> <p>I can use techniques that involve a number of steps</p>	<p>I can accurately measure, mark out, cut and shape materials and components (Measure and mark out dowels)</p> <p>I can accurately assemble, join and combine materials and components</p>		<p>I can demonstrate resourcefulness when tackling practical problems</p>
<p>Evaluate - existing products</p>	<p>I can investigate and analyse:</p> <ul style="list-style-type: none"> • how well products have been designed • how well products have been made • why materials have been chosen • what methods of construction have been used • how well products work • how well products achieve their purposes • how well products meet user needs and wants <p>I can investigate and analyse:</p> <ul style="list-style-type: none"> • how much products cost to make • how innovative products are • how sustainable the materials in products are • what impact products have beyond their intended purpose 			
<p>Evaluate - own ideas and products</p>	<p>I can identify the strengths and areas for development in their ideas and products</p> <p>I can consider the views of others, including intended users, to improve their work</p>			

	<p>I can critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make</p> <p>I can evaluate my ideas and products against my original design specification</p>			
Concrete knowledge - Technical knowledge	<p>Know how to use learning from mathematics to help design and make products that work (measuring and marking out to make a paper pattern)</p> <p>Know that materials have both functional properties and aesthetic qualities</p> <p>Know that materials can be combined and mixed to create more useful characteristics</p> <p>Know that a 3D textiles product can be made from a combination of fabric shapes</p>	<p>Know how to use learning from mathematics to help design and make products that work (measuring and marking out for dowel)</p> <p>Know that materials have both functional properties and aesthetic qualities</p> <p>Know that materials can be combined and mixed to create more useful characteristics</p> <p>Know that mechanical and electrical systems have an input, process and output</p> <p>Know how mechanical systems such as cams or pulleys or gears create movement</p> <p>Know how to reinforce and strengthen a 3D framework</p>	<p>Know where and how a variety of ingredients are grown</p>	<p>Know that materials have both functional properties and aesthetic qualities</p> <p>Know that mechanical and electrical systems have an input, process and output</p> <p>Know how more complex electrical circuits and components can be used to create functional products</p> <p>Know how to program a computer to monitor changes in the environment and control their products</p>
Vocabulary	<p>fabric, pattern/templates, applique, embroidery, Cross stitch, satin stitch, blanket stitch, chalk, edging, join, seam allowance, annotated sketch</p>	<p>shape, assemble, prototype, accurate, saw, mark out, cam, mechanism, movement, linear motion, rotary motion, pivot, off-centre, axle, framework, shaft, bench hooks, saws, hand drill, G-cramp, exploded diagram</p>		<p>Microbit, program, input, output, algorithm, sequence, variable, connection, positive, negative</p>





Curriculum Overview

Subject: D&T

	Autumn 2	Spring	Summer 2
Y6	Mexico and the Maya: what has been their impact on Birmingham?	What was the impact of WW2 on Birmingham?	How do I look after myself?
Project	<u>Food and nutrition</u> Know where and how a variety of ingredients are processed (double page spread in Topic books)	<u>Structures</u> Design a sturdy shelter using CAD (Tinkercad)(Relating to air raid shelter) Making a prototype of a new air raid shelter to build in forest school or KS1 Consider how to make this open otherwise, they will continue to make air raid shelters.	<u>Programming</u> A new invention to detect an intruder. (use a range of more input and outputs including sensors and buzzers) <u>Inventors (Science double page spread)</u> Steve Jobs and his development of new electronics and technologies
N/C objectives	<u>Design</u> <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 <u>Make</u> <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 <u>Evaluate</u> <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 		
	<u>Food and nutrition</u>	<u>Structures</u>	<u>Computing</u>

	Understand and know where and how a variety of ingredients are processed (double page spread in Topic)	Apply their understanding of how to strengthen, stiffen and reinforce more complex structures	Apply their understanding of computing to program, monitor and control their products
Design - Understanding contexts, users and purposes	<p>I can work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment</p> <p>I can describe the purpose of their products</p> <p>I can indicate the design features of their products that will appeal to intended users</p> <p>I can explain how particular parts of their products work carry out research, using surveys, interviews, questionnaires and web-based resources</p> <p>I can identify the needs, wants, preferences and values of particular individuals and groups</p> <p>I can develop a simple design specification to guide their thinking</p>		
Design - Generating, developing, modelling and communicating ideas		<p>I can use cross-sectional drawings and to develop and communicate their ideas</p> <p>I can use computer-aided design to develop and communicate their ideas</p> <p>I can generate innovative ideas, drawing on research</p>	<p>I can make design decisions, taking account of constraints such as time, resources and cost</p> <p>I can generate innovative ideas, drawing on research</p> <p>I can draw an annotated sketch for my design.</p>
Make - Planning	<p>I can select tools and equipment suitable for the task</p> <p>I can explain their choice of tools and equipment in relation to the skills and techniques they will be using</p> <p>I can select materials and components suitable for the task</p> <p>I can explain their choice of materials and components according to functional properties and aesthetic qualities</p> <p>I can produce appropriate lists of tools, equipment and materials that they need</p> <p>I can formulate step-by-step plans as a guide to making</p>		

<p>Make - Practical skills and techniques</p>		<p>I can follow procedures for safety and hygiene</p> <p>I can accurately assemble, join and combine materials and components</p> <p>I can accurately measure, mark out, cut and shape materials and components (marking out length of wood)</p> <p>I can use techniques that involve a number of steps</p> <p>I can demonstrate resourcefulness when tackling practical problems</p>	<p>I can use a wider range of materials and components than KS1, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components</p> <p>I can use techniques that involve a number of steps</p> <p>I can demonstrate resourcefulness when tackling practical problems</p>
<p>Evaluate - existing products</p>	<p>I can investigate and analyse:</p> <ul style="list-style-type: none"> • how well products have been designed • how well products have been made • why materials have been chosen • what methods of construction have been used • how well products work • how well products achieve their purposes • how well products meet user needs and wants <p>I can investigate and analyse:</p> <ul style="list-style-type: none"> • how much products cost to make • how innovative products are • how sustainable the materials in products are • what impact products have beyond their intended purpose 		
<p>Evaluate - own ideas and products</p>	<p>I can identify the strengths and areas for development in their ideas and products</p> <p>I can consider the views of others, including intended users, to improve their work</p> <p>I can critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make</p> <p>I can evaluate my ideas and products against my original design specification</p>		

<p>Concrete knowledge - Technical knowledge</p>	<p>Know where and how a variety of ingredients are processed</p>	<p>Know how to use learning from science to help design and make products that work (relate to properties of materials)</p> <p>Know how to use learning from mathematics to help design and make products that work (measuring and marking out wood)</p> <p>Know that materials have both functional properties and aesthetic qualities</p> <p>Know that materials can be combined and mixed to create more useful characteristics</p> <p>Know how to reinforce and strengthen a 3D framework</p>	<p>Know that mechanical and electrical systems have an input, process and output</p> <p>Know how more complex electrical circuits and components can be used to create functional products</p> <p>Know how to program a computer to monitor changes in the environment and control their products</p>
<p>Vocabulary</p>		<p>Cross sectional diagram, rolling, strengthening, sturdy, reinforcing, triangulation, diagonal, stable, strength, tube, rigid, section, water resistance, tie, strut, beam, bracket, construct</p>	<p>analogue, digital, selection, LEDs, sensor, trigger, audio, visual, device</p>