

## Design and Technology Knowledge and skills:

### Reception - Cycle A/B Term 2 - Structures - Houses

<b>Key Question: How can I make a model of my house and what do I need?</b>		
<b>What I should already know</b>	<b>Key Knowledge</b>	<b>Key skills</b>
Experience of using construction kits to build walls, towers and frameworks. Experience of using of basic tools e.g., scissors or hole punches with construction materials e.g., plastic, card.	To Know how to make 3D structures free standing, how to join materials	Begin to use the language of designing and making for example join, build, shape. Learning about planning and how to come up with an idea but try to make it even better. Be able to talk about what they will make and how.
<b>End goal</b>	<b>Key Vocabulary</b>	<b>Key People</b>
To learn how to use a range of tools, learn how everyday objects work by dismantling them and investigating them. Use of technology toolbox to get used to tools and what they are used for	Cardboard, paper, join, glue, stick, stable, 3D, cut, fold, join, structure, wall, tower, shape, weak, strong, base, top,	

## Reception - Cycle A/B Term 4 – Joining materials – Mini-Beast

<b>Key Question: How do I join materials?</b>		
<b>What I should already know</b>	<b>Key Knowledge</b>	<b>Key skills</b>
<p>How to join some materials</p> <p>Experience of different methods of joining card and paper</p> <p>To learn to construct with a purpose in mind.</p> <p>Explore materials when making, show freedom of experimenting</p>	<p>To know a variety of joining techniques and when to use them.</p> <p>To know how to use junk modelling as a way of experimenting with construction with freedom.</p>	<p>To be able to design a model. Be able to select tools and techniques needed to shape, assemble, and join materials independently.</p> <p>To use tools carefully and safely with purpose.</p>
<b>End goal</b>	<b>Key Vocabulary</b>	<b>Key People</b>
<p>To design and build a model. Early experiences of working with paper and card.</p> <p>Experience of simple cutting, shaping, and joining skills using scissors, glue, paper fasteners and masking tape</p>	<p>Materials, join, flaps, hinges, paper fasteners, masking tape, design</p>	

## Reception - Cycle A/B – Term 6 - Cooking & Nutrition

<b>Key Question: What healthy ingredients can I put in my smoothie?</b>		
<b>What I should already know</b>	<b>Key Knowledge</b>	<b>Key skills</b>
To be able to identify and name some fruits and vegetables. Basic hygiene awareness	To begin to know some of the tools, techniques and processes involved in food preparation.	Develop fine motor skills, cutting/chopping. Working as a team, sharing equipment. Develop social skills – food hygiene, food types and healthy eating
<b>End goal</b>	<b>Key Vocabulary</b>	<b>Key People</b>
Know common fruit and vegetables To use senses to select fruit and vegetables (appearance taste and smell.) How to cut soft fruit and vegetables using appropriate utensils. rolling pins, pastry cutters.	fruit and vegetable names, names of equipment and utensils, sensory vocabulary e.g., soft, juicy, crunchy, sweet, sticky, core, slicing, peeling, cutting, squeezing, healthy diet, ingredients, tasting,	

## KS1 – Cycle A Term 2 Structures

<b>Key Question: How can structures be made stronger and stiffer in order to carry a load?</b>		
<b>What should I already know?</b>	<b>Key Knowledge</b>	<b>Key skills</b>
<p>Experience of using construction kits to build walls, towers, and frameworks.</p> <p>Experience of using of basic tools e.g., scissors or hole punches with construction materials e.g., plastic, card.</p> <p>Experience of different methods of joining card and paper</p>	<p>Know how to measure, mark out, cut, shape, joining and finishing techniques with a range of tools</p>	<p>Select and use tools, materials and techniques suitable for the task, explaining their choices.</p>
<b>End goal</b>	<b>Key Vocabulary</b>	<b>Key People</b>
<p>Know how to make freestanding structures stronger, stiffer, and more stable.</p> <p>Know and use technical vocabulary relevant to the project</p>	<p>cut, fold, join, fix structure, wall, tower, framework, weak, strong, base, top, underneath, side, edge, surface, thinner, thicker, corner, point, straight, curved metal, wood, plastic circle, triangle, square, rectangle, cuboid, cube, cylinder design, make, evaluate, user, purpose, ideas, design criteria, product, function</p>	<p>Thomas Telford</p>

## KS1 – Cycle A Term 4 mechanical systems: Sliders and Levers (Greetings card)

<b>Key Question: What is the purpose of my product and how will it move?</b>		
<b>What I should already know</b>	<b>Key Knowledge</b>	<b>Key skills</b>
<p>Early experiences of working with paper and card to make simple flaps and hinges.</p> <p>Experience of simple cutting, shaping and joining skills using scissors, glue, paper fasteners and masking tape.</p>	<p>Know how a slider moves.</p> <p>Know how a lever moves. Know which part of the mechanism is the pivot. Know how to use tools safely and correctly. Know to assemble, join, and combine components to replicate the slider and lever mechanisms.</p>	<p>Plan by suggesting what to do next. Select and use tools suitable for the task, explaining their choices, to cut, shape and join paper and card. Use simple finishing techniques suitable for the product they are creating.</p>
<b>End goal</b>	<b>Key Vocabulary</b>	<b>Key People</b>
<p>Explore and use sliders and levers.</p> <p>Understand that different mechanisms produce different types of movement.</p> <p>Know and use technical vocabulary relevant to the project.</p>	<p>slider, lever, pivot, slot, bridge/guide card, masking tape, paper fastener, join pull, push, up, down, straight, curve, forwards, backwards design, make, evaluate, user, purpose, ideas, design criteria, product, function</p>	

## KS1 – Cycle A Term 6 Cooking and Nutrition – Preparing fruit and vegetables

<b>Key Question: How do I prepare fruit and vegetables?</b>		
<b>What I should already know</b>	<b>Key Knowledge</b>	<b>Key skills</b>
<p>Know common fruit and vegetables</p> <p>To use senses to select fruit and vegetables (appearance taste and smell.)</p> <p>How to cut soft fruit and vegetables using appropriate utensils.</p>	<p>Know different food processes create different effects</p> <p>Know why it is good to eat fruit and vegetables</p>	<p>Use simple utensils and equipment to e.g., peel, cut, slice, squeeze, grate and chop safely.</p> <p>Select from a range of fruit and vegetables according to their characteristics e.g., colour, texture and taste to create a chosen product</p>
<b>End goal</b>	<b>Key Vocabulary</b>	<b>Key People</b>
<p>Understand where a range of fruit and vegetables come from e.g., farmed or grown at home.</p> <p>Understand and use basic principles of a healthy and varied diet to prepare dishes, including how fruit and vegetables are part of The Eatwell plate.</p> <p>Know and use technical and sensory vocabulary relevant to the project.</p>	<p>fruit and vegetable names, names of equipment and utensils sensory vocabulary e.g., soft, juicy, crunchy, sweet, sticky, smooth, sharp, crisp, sour, hard flesh, skin, seed, pip, core, slicing, peeling, cutting, squeezing, healthy diet, choosing, ingredients, planning, investigating tasting, arranging, popular, design, evaluate, criteria</p>	

## LKS2 – Cycle A Term 2 Shell Structures/ Shell structures using CAD

<b>Key Question: Which shape will be the best for my structure?</b>		
<b>What I should already know</b>	<b>Key Knowledge</b>	<b>Key skills</b>
<p>Know how to use different joining, cutting, and finishing techniques with paper and card. Have a basic understanding of 2-D and 3-D shapes in mathematics and the physical properties and everyday uses of materials in science.</p>	<p>Know how to make, construct, and join nets to create 3-D shapes. Know how to use different ways of stiffening and strengthening their shell structures e.g., folding and shaping, corrugating, ribbing, laminating.</p>	<p>Order the main stages of making. Use appropriate tools to measure, mark out, cut, score, shape and assemble with some accuracy. Explain their choice of materials according to functional properties and aesthetic qualities. Use finishing techniques suitable for the product they are creating. Practise using computer-aided design (CAD) software to design the net, text and graphics for their products according to purposes.</p>
<b>End goal</b>	<b>Key Vocabulary</b>	<b>Key People</b>
<p>Develop and use knowledge of how to construct strong, stiff shell structures. Develop and use knowledge of nets of cubes and cuboids and, where appropriate, more complex 3D shapes. Know and use technical vocabulary relevant to the project.</p>	<p>shell structure, three-dimensional (3-D) shape, net, cube, cuboid, prism, vertex, edge, face, length, width, breadth, capacity marking out, scoring, shaping, tabs, adhesives, joining, assemble, accuracy, material, stiff, strong, reduce, reuse, recycle, corrugating, ribbing, laminating font, lettering, text, graphics, decision, evaluating, design brief design criteria, innovative, prototype</p>	<p>John Utzon Ron Arad</p>

## LKS2 – Cycle A Term 4 - Electrical systems Focus Simple programming and control - Nightlight

<b>Key Question: How will I control my night light so that it turns on and off when I want it to?</b>		
<b>What I should already know</b>	<b>Key Knowledge</b>	<b>Key skills</b>
<p>Constructed a simple series electrical circuit, using bulbs, batteries, switches, and buzzers. Cut and joined a variety of construction materials, such as wood, card, plastic, reclaimed materials, and glue.</p>	<p>Know which of the components in the circuit are input devices e.g., switches, and which are output devices e.g., bulbs, motors and buzzers. Know how to find a fault in a simple circuit and correct it. Know how to use a simple computer control program using an interface box, microcontroller, or standalone control box to control output devices, e.g., bulbs and buzzers, using a repeating sequence of instructions. Know how to make a variety of switches by using simple classroom materials e.g., card, corrugated plastic, aluminum foil, paper fasteners and paper clips. Make switches that operate in different ways e.g., when you press them, when you turn them, when you push them from side to side. Know to avoid making short circuits.</p>	<p>Order the main stages of making. Select from and use tools and equipment to cut, shape, join and finish with some accuracy. Connect simple electrical components and a battery in a series circuit to achieve a functional outcome. Program a standalone control box, microcontroller, or interface box to enhance the way the product works.</p>
<b>End goal</b>	<b>Key Vocabulary</b>	<b>Key People</b>
<p>Understand and use computing to program and control products containing electrical systems, such as series circuits incorporating switches, bulbs and buzzers. Know and use technical vocabulary relevant to the project</p>	<p>series circuit, fault, connection, toggle switch, push-to-make switch, push-to-break switch, battery, battery holder, light emitting diode (LED), bulb, bulb holder, USB cable, wire, insulator, conductor, crocodile clip control, program, system, input device, output device, process user, purpose, function, prototype, design criteria, innovative, appealing, design brief</p>	

## LKS2 – Cycle A Term 6 Cooking and Nutrition – healthy and varied diet – Blueberry muffin and fruit tart

<b>Key Question: What kind of food product can I make that is part of a healthy varied diet? What ingredients could it contain?</b>		
<b>What I should already know</b>	<b>Key Knowledge</b>	<b>Key skills</b>
<p>Know some ways to prepare ingredients safely and hygienically.</p> <p>Have some basic knowledge and understanding about healthy eating and The Eatwell plate.</p> <p>Have used some equipment and utensils and prepared and combined ingredients to make a product.</p>	<p>Know to select and use a range of utensils and use a range of techniques as appropriate to prepare ingredients hygienically including the bridge and claw technique, grating, peeling, chopping, slicing, mixing, spreading, kneading and baking.</p> <p>Know basic food hygiene practices when handling food including the importance of following instructions to control risk.</p>	<p>To consider the main stages in making the food product, before preparing/cooking the product including the ingredients and utensils they will need.</p> <p>Evaluate as the assignment proceeds and the final product against the intended purpose and user, reflecting on the design criteria previously agreed.</p> <p>Consider what others think of the product when considering how the work might be improved</p>
<b>End goal</b>	<b>Key Vocabulary</b>	<b>Key People</b>
<p>Know how to use appropriate equipment and utensils to prepare and combine food.</p> <p>Know about a range of fresh and processed ingredients appropriate for their product, and whether they are grown, reared or caught.</p> <p>Know and use relevant technical and sensory vocabulary appropriately.</p>	<p>name of products, names of equipment, utensils, techniques and ingredients texture, taste, sweet, sour, hot, spicy, appearance, smell, preference, greasy, moist, cook, fresh, savoury hygienic, edible, grown, reared, caught, frozen, tinned, processed, seasonal, harvested healthy/varied diet planning, design criteria, purpose, user, annotated sketch, sensory evaluation</p>	

## UKS2 – Cycle A Term 2 - Frame structures

<b>Key Question: How can frameworks be reinforced and strengthened?</b>		
<b>What I should already know</b>	<b>Key Knowledge</b>	<b>Key skills</b>
<p>Experience of using measuring, marking out, cutting, joining, shaping and finishing techniques with construction materials.</p> <p>Basic understanding of what structures are and how they can be made stronger, stiffer and more stable</p>	<p>Know how to build 2-D frameworks and compare the strength of square frameworks with triangular frameworks. Know how to reinforce square frameworks using diagonals to help develop an understanding of using triangulation to add strength to a structure.</p>	<p>Formulate a clear plan, including a step-by-step list of what needs to be done and lists of resources to be used. Competently select from and use appropriate tools to accurately measure, mark out, cut, shape and join construction materials to make frameworks. Use finishing and decorative techniques suitable for the product they are designing and making.</p> <p>Use technologies for research purposes.</p>
<b>End goal</b>	<b>Key Vocabulary</b>	<b>Key People</b>
<p>Understand how to strengthen, stiffen and reinforce 3-D frameworks.</p> <p>Know and use technical vocabulary relevant to the project.</p>	<p>frame structure, stiffen, strengthen, reinforce, triangulation, stability, shape, join, temporary, permanent design brief, design specification, prototype, annotated sketch, purpose, user, innovation, research, functional</p>	<p>Gustave Eiffel – designer of the Eiffel Tower; Thomas Farnolls Pritchard – designer of the Iron Bridge. Renzo Piano – designer of the Shard</p>

## UKS2 – Cycle A Term 4 Textiles – Combing different fabric shapes – CAD to make pattern

<b>Key Question: What features do I need to include in a functional, innovative and authentic product?</b>		
<b>What I should already know</b>	<b>Key Knowledge</b>	<b>Key skills</b>
<p>Experience of basic stitching, joining textiles and finishing techniques.</p> <p>Experience of making and using simple pattern pieces.</p>	<p>Know how to thread needles and join textiles using a range of stitches, Use of sewing machines to join fabric. Know how to sew and shape curved edges. 2-D paper pattern making. Know how to use computer-aided design (CAD) by using on-line pattern making software to generate pattern pieces.</p> <p>Investigate using art packages on the computer to design prints that can be applied to textiles.</p>	<p>Produce detailed lists of equipment and fabrics relevant to their tasks. Formulate step-by-step plans and, if appropriate, allocate tasks within a team. Select from and use a range of tools and equipment to make products that are accurately assembled and well finished. Work within the constraints of time, resources and cost</p>
<b>End goal</b>	<b>Key Vocabulary</b>	<b>Key People</b>
<p>A 3-D textile product can be made from a combination of accurately made pattern pieces, fabric shapes and different fabrics. Fabrics can be strengthened, stiffened, and reinforced where appropriate.</p>	<p>seam, seam allowance, wadding, reinforce, right side, wrong side, hem, template, pattern pieces name of textiles and fastenings used, pins, needles, thread, pinking shears, fastenings, iron transfer paper design criteria, annotate, design decisions, functionality, innovation, authentic, user, purpose, evaluate, mock-up, prototype</p>	

## UKS2 – Cycle A Term 6 Cooking and Nutrition – Celebrating culture and seasonality (Soup)

<b>Key Question: How can I make a snack appealing for the range of users using seasonal ingredients?</b>		
<b>What I should already know</b>	<b>Key Knowledge</b>	<b>Key skills</b>
Have knowledge and understanding about food hygiene, nutrition, healthy eating and a varied diet. Be able to use appropriate equipment and utensils, and apply a range of techniques for measuring out, preparing and combining ingredients	Know how to measure out, cut, shape and combine and mix ingredients. Know how to use appropriate utensils and equipment safely and hygienically. Know which ingredients could be changed or added in a basic recipe. Know how to make different shapes to change the appearance of the food product Know the benefits/difficulties of selecting seasonal, organic and/or locally sourced ingredients.	Write a step-by-step recipe, including a list of ingredients, equipment and utensils. Select and use appropriate utensils and equipment accurately to measure and combine appropriate ingredients. Make, decorate and present the food product appropriately for the intended user and purpose
<b>End goal</b>	<b>Key Vocabulary</b>	<b>Key People</b>
Know how to use utensils and equipment including heat sources to prepare and cook food. Understand about seasonality in relation to food products and the source of different food products. Know and use relevant technical and sensory vocabulary.	ingredients, yeast, dough, bran, flour, wholemeal, unleavened, baking soda, spice, herbs fat, sugar, carbohydrate, protein, vitamins, nutrients, nutrition, healthy, varied, gluten, dairy, allergy, intolerance, savoury, source, seasonality utensils, combine, fold, knead, stir, pour, mix, rubbing in, whisk, beat, roll out, shape, sprinkle, crumble design specification, innovative, research, evaluate, design brief	key chefs who have influenced eating habits to promote varied and healthy diets.

## KS1 – Cycle B Term 2 - Mechanical systems – Wheels and Axels – moving vehicle

<b>Key Question: Who am I making the trolley for, and which way moves best?</b>		
<b>What I should already know</b>	<b>Key Knowledge</b>	<b>Key skills</b>
Assembled vehicles with moving wheels using construction kits. Explore moving vehicles through play. Gained some experience of designing, making and evaluating products for a specified user and purpose. Developed some cutting, joining and finishing skills with card.	Know how to make a product that moves. Know wheels and axles may be assembled as either fixed axles or free axles. Know different ways of making axle holders. Know how to mark out, hold, cut and join materials and components correctly. Know how to assemble some examples of wheel, axle, axle holder combinations.	Select from and use a range of tools and equipment to perform practical tasks such as cutting and joining to allow movement and finishing. Select from and use a range of materials and components such as paper, card, plastic and wood according to their characteristics
<b>End goal</b>	<b>Key Vocabulary</b>	<b>Key People</b>
Explore and use wheels, axles and axle holders. Distinguish between fixed and freely moving axles. Know and use technical vocabulary relevant to the project.	vehicle, wheel, axle, axle holder, chassis, body, cab assembling, cutting, joining, shaping, finishing, fixed, free, moving, mechanism names of tools, equipment and materials used design, make, evaluate, purpose, user, criteria, functional	

## KS1 – Cycle B Term 4 – Textiles – Templates and joining - Puppets

<b>Key Question: What sort of puppet shall I make? Who is it for and what is it for?</b>		
<b>What I should already know</b>	<b>Key Knowledge</b>	<b>Key skills</b>
<p>Explored and used different fabrics. Cut and joined fabrics with simple techniques. Thought about the user and purpose of products</p>	<p>Know to investigate fabrics to determine which is best for the purpose of the product they are creating. Know how to use a template or simple paper pattern. Know how to use appropriate tools to mark out, tape or pin the fabric to the templates or paper patterns and cut out the relevant fabric pieces for the product. Know how to join fabrics and the different joining techniques. Know some finishing techniques e.g. sewing buttons, 3-D fabric paint, gluing sequins, printing.</p>	<p>Select from and use a range of tools and equipment to perform practical tasks such as marking out, cutting, joining and finishing. Select from and use textiles according to their characteristics.</p>
<b>End goal</b>	<b>Key Vocabulary</b>	<b>Key People</b>
<p>Understand how simple 3-D textile products are made, using a template to create two identical shapes. Understand how to join fabrics using different techniques e.g. running stitch, glue, over stitch, stapling. Explore different finishing techniques e.g. using painting, fabric crayons, stitching, sequins, buttons and ribbons. Know and use technical vocabulary relevant to the project.</p>	<p>names of existing products, joining and finishing techniques, tools, fabrics and components template, pattern pieces, mark out, join, decorate, finish features, suitable, quality mock-up, design brief, design criteria, make, evaluate, user, purpose, function</p>	

## KS1 – Cycle B Term 6 – Cooking and Nutrition – Father’s Day Picnic

<b>Key Question: What healthy foods can I include in a picnic?</b>		
<b>What I should already know</b>	<b>Key Knowledge</b>	<b>Key skills</b>
Basic principles of a healthy and varied diet to prepare dishes, including fruit and vegetables	Know to identify and chose healthy nutritious food, know how to use tools to prepare food safely	Use simple utensils and equipment to e.g., peel, cut, slice, squeeze, grate and chop safely. Select from a range of fruit and vegetables according to their characteristics e.g., colour, texture and taste to create a chosen product
<b>End goal</b>	<b>Key Vocabulary</b>	<b>Key People</b>
To select food that is healthy and nutritious and how to prepare it for a picnic.	fruit and vegetable names, names of equipment and utensils sensory vocabulary e.g., soft, juicy, crunchy, sweet, sticky, smooth, sharp, crisp, sour, hard flesh, skin, seed, pip, core, slicing, peeling, cutting, squeezing, healthy diet, choosing, ingredients, planning, investigating tasting, arranging, popular, design, evaluate, criteria	

## LKS2 – Cycle B Term 2 - Mechanical system – Sliders, levers linkages – Greeting’s card

<b>Key Question: Which lever and linkage mechanism will work best for my greetings card?</b>		
<b>What I should already know</b>	<b>Key Knowledge</b>	<b>Key skills</b>
<p>How to use mechanisms such as flaps, sliders and levers.</p> <p>Know how basic cutting, joining and finishing techniques with paper and card.</p>	<p>Know which card strip is the lever</p> <p>Know which card strip is acting as the linkage</p> <p>Know which part of the system is the input and which part the output</p> <p>Which are the fixed pivots, and which are the loose pivots</p> <p>Know how to accurately measure, mark out, cut, join, and use finishing skills and techniques.</p>	<p>Order the main stages of making.</p> <p>Select from and use appropriate tools with some accuracy to cut, shape and join paper and card.</p> <p>Select from and use finishing techniques suitable for the product they are creating.</p>
<b>End goal</b>	<b>Key Vocabulary</b>	<b>Key People</b>
<p>Understand and use lever and linkage mechanisms.</p> <p>Distinguish between fixed and loose pivots.</p> <p>Know and use technical vocabulary relevant to the project.</p>	<p>mechanism, lever, linkage, pivot, slot, bridge, guide system, input, process, output linear, rotary, oscillating, reciprocating user, purpose, function prototype, design criteria, innovative, appealing, design brief</p>	

## LKS2 – Cycle A Term 4 Textiles – 2D shape to 3S project

<b>Key Question: Which joining techniques would be the best for the fabric and pattern?</b>		
<b>What I should already know</b>	<b>Key Knowledge</b>	<b>Key skills</b>
<p>Know how to join fabric in simple ways by gluing and stitching.</p> <p>Know how to use simple patterns and templates for marking out.</p> <p>Have evaluated a range of textile products.</p>	<p>Know a range of stitching techniques</p> <p>Know how to create a paper pattern using 2-D shapes.</p> <p>Know which joining technique makes the strongest seam and why</p> <p>Know which joining techniques are suitable for the fabric and purpose</p> <p>Know how you can stiffen your fabric</p>	<p>Create a set of design criteria.</p> <p>Plan the main stages of making e.g., using a flowchart or storyboard.</p> <p>Produce mock-ups and prototypes of their chosen product</p> <p>Evaluate as the process is undertaken and the final product in relation to the design brief and criteria.</p> <p>Demonstrate a range of stitching techniques</p>
<b>End goal</b>	<b>Key Vocabulary</b>	<b>Key People</b>
<p>Know how to strengthen, stiffen and reinforce existing fabrics.</p> <p>Understand how to securely join two pieces of fabric together.</p> <p>Understand the need for patterns and seam allowances.</p> <p>Know and use technical vocabulary relevant to the project.</p>	<p>fabric, names of fabrics, fastening, compartment, zip, button, structure, finishing technique, strength, weakness, stiffening, templates, stitch, seam, seam allowance user, purpose, design, model, evaluate, prototype, annotated sketch, functional, innovative, investigate, label, drawing, aesthetics, function, pattern pieces</p>	

## LKS2 – Cycle B – Term 6 - Cooking and Nutrition – Vegetable muffins

<b>Key Question: Which seasonal vegetable shall I put in my muffin?</b>		
<b>What I should already know</b>	<b>Key Knowledge</b>	<b>Key skills</b>
<p>Understand where a range of fruit and vegetables come from e.g., farmed or grown at home.</p> <p>Understand and use basic principles of a healthy and varied diet to prepare dishes, including how fruit and vegetables are part of The Eatwell plate.</p> <p>Know and use technical and sensory vocabulary relevant to the project.</p>	<p>Gather information about existing products available relating to the product. Visit a local supermarket and/or use the internet. Find out how a variety of ingredients used in products are grown and harvested, reared, caught and processed e.g. Where and when are the ingredients grown? Where do different meats/fish/cheese/eggs come from? How and why are they processed?</p>	<p>Plan the main stages of a recipe, listing ingredients, utensils, and equipment. Select and use appropriate utensils and equipment to prepare and combine ingredients. Select from a range of ingredients to make appropriate food products, thinking about sensory characteristics.</p>
<b>End goal</b>	<b>Key Vocabulary</b>	<b>Key People</b>
<p>To consider who am I making the food product for. Know how I can make it appealing for the range of users</p>	<p>knives, chopping board, weighing scales, measuring jugs, bowls, baking trays, spoons – various sizes, parchment paper, plastic film</p>	

## UKS2 - Cycle B Term 2 –Electrical systems Focus Monitoring and control (Applying computing) Alarm

<b>Key Question: How will computer control improve my Alarm?</b>		
<b>What I should already know</b>	<b>Key Knowledge</b>	<b>Key skills</b>
<p>Measuring, marking out, cutting and joining skills with construction materials</p> <p>Some experience of writing and modifying a program to make a light turn on or flash on and off. Understanding of the essential characteristics of a series circuit and experience of creating</p> <p>Initial experience of using computer control software and an interface box, a standalone box or microcontroller, e.g. Crumble.</p>	<p>Know different input and output devices.</p> <p>Know how to use wire strippers, twist and tape connections, screw connections, crocodile clips and connecting blocks.</p> <p>Explore a range of electrical systems that could be used to control their products.</p> <p>Write and modify computer control programs that include inputs, outputs and decision making. Test out the programs using electrical components connected to microcontrollers, interface boxes or standalone boxes.</p>	<p>Formulate a step-by-step plan to guide making, listing tools, equipment, materials and components. Competently select and accurately assemble materials, and securely connect electrical components to produce a reliable, functional product. Create and modify a computer control program to enable their electrical product to respond to changes in the environment.</p>
<b>End goal</b>	<b>Key Vocabulary</b>	<b>Key People</b>
<p>Understand and use electrical systems in their products. Understand the use of computer control systems in products.</p> <p>Apply their understanding of computing to program, monitor and control their products.</p> <p>Know and use technical vocabulary relevant to the project.</p>	<p>reed switch, toggle switch, push-to-make switch, push-to-break switch, light dependent resistor (LDR), tilt switch light emitting diode (LED), bulb, bulb holder, battery, battery holder, USB cable, wire, insulator, conductor, crocodile clip control, program, system, input device, output device, series circuit, parallel circuit function, innovative, design specification, design brief, user, purpose</p>	

## UKS2 - Cycle B Term 4 – Mechanical systems: slides, levers linkages, gears, pulleys, cams, wheels, and axels - Carousel

<b>Key Question: What type of toy vehicle shall I make, what will be its purpose and who will use it?</b>		
<b>What I should already know</b>	<b>Key Knowledge</b>	<b>Key skills</b>
<p>Experience of axles, axle holders and wheels that are fixed or free moving. Basic understanding of electrical circuits, simple switches, and components. Experience of cutting and joining techniques with a range of materials including card, plastic, and wood. An understanding of how to strengthen and stiffen structures</p>	<p>Investigate combinations of two different sized pulleys to learn about direction and speed of rotation. Know how to reverse the direction of rotation? AND/OR using a construction kit, explore combinations of two different size gears meshed together then know how to decide the gear ratios. Know how to build a working circuit that incorporates a battery, a motor and a handmade switch. Know how to accurately use tools and equipment. Know how to draw a pictorial representation of the circuit or draw a circuit diagram using correct symbols.</p>	<p>Produce detailed lists of tools, equipment and materials. Formulate step-by-step plans and, if appropriate, allocate tasks within a team. Select from and use a range of tools and equipment to make products that that are accurately assembled and well finished. Work within the constraints of time, resources and cost</p>
<b>End goal</b>	<b>Key Vocabulary</b>	<b>Key People</b>
<p>Understand that mechanical and electrical systems have an input, process and an output. Understand how gears and pulleys can be used to speed up, slow down or change the direction of movement. Know and use technical vocabulary relevant to the project.</p>	<p>pulley, drive belt, gear, rotation, spindle, driver, follower, ratio, transmit, axle, motor circuit, switch, circuit diagram annotated drawings, exploded diagrams mechanical system, electrical system, input, process, output design decisions, functionality, innovation, authentic, user, purpose, design specification, design brie</p>	

## UKS2 - Cycle B Term 6 - Cooking and Nutrition – Pasta dishes

<b>Key Question:</b> Has the snack met the needs of the user and achieved its purpose?		
<b>What I should already know</b>	<b>Key Knowledge</b>	<b>Key skills</b>
Know how to use appropriate equipment and utensils to prepare and combine food. Know about a range of fresh and processed ingredients appropriate for their product, and whether they are grown, reared, or caught. Know and use relevant technical and sensory vocabulary appropriately.	Discussing and communicating ideas, researching existing products, drawing annotated sketches, generating design criteria	Learn to select and use a range of utensils and use a range of techniques as appropriate to prepare ingredients hygienically including the bridge and claw technique, grating, peeling, chopping, slicing, mixing, spreading, kneading, and baking.
<b>End goal</b>	<b>Key Vocabulary</b>	<b>Key People</b>
Evaluating the food product against the design criteria including the user and purpose. Recording final product through an annotated sketch.	knives, chopping board, weighing scales, measuring jugs, bowls, baking trays, spoons – various sizes, parchment paper, plastic film	

## LKS2 – Cycle A Term 4 Electrical systems – Simple circuits and switches

<b>Key Question: How might different types of switches be useful in different types of products?</b>		
<b>What I should already know</b>	<b>Key Knowledge</b>	<b>Key skills</b>
<p>Know how to construct a simple series electrical circuit in science, using bulbs, switches and buzzers.</p> <p>Know how to cut and join a variety of construction materials, such as wood, card, plastic, reclaimed materials and glue.</p>	<p>Know how to make a variety of switches by using simple classroom materials e.g., card, corrugated plastic, aluminum foil, paper fasteners and paper clips.</p> <p>Know how to make switches that operate in different ways e.g., when you press them, when you turn them, when you push them from side to side.</p>	<p>Order the main stages of making.</p> <p>Select from and use tools and equipment to cut, shape, join and finish with some accuracy.</p> <p>Select from and use materials and components, including construction materials and electrical components according to their functional properties and aesthetic qualities</p>
<b>End goal</b>	<b>Key Vocabulary</b>	<b>Key People</b>
<p>Understand and use electrical systems in their products, such as series circuits incorporating switches, bulbs and buzzers.</p> <p>Apply their understanding of computing to program and control their products.</p> <p>Know and use technical vocabulary relevant to the project.</p>	<p>series circuit, fault, connection, toggle switch, push-to-make switch, push-to-break switch, battery, battery holder, bulb, bulb holder, wire, insulator, conductor, crocodile clip control, program, system, input device, output device user, purpose, function, prototype, design criteria, innovative, appealing, design brief</p>	

## UKS2 – Cycle A Term 4 Electrical Systems – more complex switches

<b>Key Question: Which switches, or sensors should I use and how can computer control improve my alarm system?</b>		
<b>What I should already know</b>	<b>Key Knowledge</b>	<b>Key skills</b>
Understanding of the essential characteristics of a series circuit and experience of creating a batterypowered, functional, electrical product. Initial experience of using computer control software and an interface box or a standalone box, e.g., writing and modifying a program to make a light flash on and off.	Know the methods for making secure electrical connections. Know how to explore a range of electrical systems for controlling products. Write computer control programs that include inputs, outputs and decision making. Know how to test out programs using electrical components connected to interface boxes or standalone boxes.	Formulate a step-by-step plan to guide making, listing tools, equipment, materials and components. Competently select and accurately assemble materials, and securely connect electrical components to produce a reliable, functional product. Create and modify a computer control program to enable an electrical product to work automatically in response to changes in the environment
<b>End goal</b>	<b>Key Vocabulary</b>	<b>Key People</b>
Understand and use electrical systems in their products. Apply their understanding of computing to program, monitor and control their products. Know and use technical vocabulary relevant to the project.	series circuit, parallel circuit, names of switches and components, input device, output device, system, monitor, control, program, flowchart function, innovative, design specification, design brief, user, purpose	Thomas Edison – light bulb.