Ickleford Primary School **Progression Map: Design and Technology**

	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Vocabulary	Structures focused vocabulary cardboard, boxes, newspaper, plastic, grass, leaves, twigs, shelter, cut, shred, slit, size, build, construct, strong, fix, card, draw, shapes, half/halves, split pins, template, leaves, glue, paint, colouring pencils, materials, equipment, join, make Food focused vocabulary ingredients, method, combine, mix, stir, knead, dough, mixture, rise, oven, preheat, cook, bake, decoration, soft, crumble, firm, pastry, measure, cutting, cutter, chill, set, hand hygiene Textiles focused vocabulary design, plan, sew, stitch, front, back, needle, thread, wool, pins, scissors, fabric, cloth, material,	Textiles focused vocabulary product(s), joining, finishing, tools, fabric(s), component(s), template, pattern pieces, mark out, join, decorate, finish, features, suitable, mock-up, design brief, design criteria, make, evaluate, user, purpose, function Mechanisms focused vocabulary mechanism, slider, lever, pivot, slot, bridge/guide, card, masking tape, paper fastener, pull, push, up, down, straight, curve, forwards, backwards, ideas,	Food focused vocabulary 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 Structures focused vocabulary 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, make, user, purpose, ideas, design criteria, product, function	Textiles focused vocabulary fabric(s), 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 Mechanisms focused vocabulary mechanism, lever, linkage, pivot, slot, bridge, guide, system, input, process, output, linear, rotary, oscillating, reciprocating, design criteria, appealing, design brief	Food focused vocabulary name of products, names of equipment, utensils, technique(s), 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 evaluations, evaluate, Electrical Systems focused vocabulary 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, function, prototype, innovative, appealing, design brief	Mechanisms focused vocabulary 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 brief, evaluate, Structures focused vocabulary frame structure, stiffening, strengthen, reinforce, triangulation, stability, shape, join, temporary, permanent, prototype, annotated sketch, research, functional	Food focused 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 Electrical Systems focused vocabulary series circuit, parallel circuit, switches, components, input device, output device, system, monitor, control, program, flowchart, function, user, purpose
Mechanisms or Electrical systems	**Mechanisms** **Designing** To begin to generate ideas about what they could make using pictures and simple words. To make simple plans or models of their intended products. **Making**	**Mechanisms** **Designing** To generate ideas based on simple design criteria and their own experiences, explaining what they could make. To develop, model and communicate their ideas through drawings and mock-ups with card and paper.	N/A	**Mechanisms** **Designing** To generate realistic ideas and design criteria collaboratively through discussion, focusing on the needs of the user and purpose of the product. To develop ideas through the analysis of existing products and	**Electrical Systems** **Designing** To gather information about needs and wants, and develop design criteria to inform the design of products that are fit for purpose, aimed at particular individuals or groups. To generate, develop, model and communicate	**Mechanisms** **Designing** To generate innovative ideas by carrying out research using surveys, interviews, questionnaires and web-based resources. To develop a simple design specification to guide their thinking.	**Electrical Systems** **Designing** To use research to develop a design specification for a functional product that responds automatically to changes in the environment. Take account of constraints including time, resources and cost.

	To work with paper and card to make simple flaps and hinges. To, with support, cut, shape and join skills using scissors, glue, paper fasteners and masking tape. **Evaluating** To recognise characteristics of familiar mechanical products To evaluate their product by explaining how they made it. To evaluate their product by explaining how it works. **Technical knowledge & understanding** To explain in simple terms how their mechanism works. To describe some of the characteristics of the materials & processes they are using. To begin to know and use simple technical vocabulary relevant to the project.	**Making** To plan by suggesting what to do next. To select and use tools, explaining their choices, to cut, shape and join paper and card. To use simple finishing techniques suitable for the product they are creating. **Evaluating** To explore a range of existing books and everyday products that use simple sliders and levers. To evaluate their product by discussing how well it works in relation to the purpose and the user and whether it meets design criteria. **Technical knowledge and understanding** To explore and use sliders and levers. To understand that different mechanisms produce different types of movement. To know and use technical vocabulary relevant to the project.		use annotated sketches and prototypes to model and communicate ideas. **Making** To order the main stages of making. To select and use appropriate tools to measure, mark out, cut, score, shape and assemble with some accuracy. To explain their choice of materials according to functional properties and aesthetic qualities. To use finishing techniques suitable for the product they are creating. **Evaluating** To investigate and evaluate a range of existing shell structures including the materials, components and techniques that have been used. To test and evaluate their own products against design criteria and the intended user and purpose. **Technical knowledge and understanding** To develop and use knowledge of how to construct strong, stiff shell structures. To develop and use knowledge of nets of cubes and cuboids and, where appropriate, more complex 3D shapes.	realistic ideas through discussion and, as appropriate, annotated sketches, cross-sectional and exploded diagrams. **Making** To order the main stages of making. To select from and use tools and equipment to cut, shape, join and finish with some accuracy. To select from and use materials and components, including construction materials and electrical components according to their functional properties and aesthetic qualities. **Evaluating** To investigate and analyse a range of existing battery-powered products. To evaluate their ideas and products against their own design criteria and identify the strengths and areas for improvement in their work. **Technical knowledge and understanding** To understand and use electrical systems in their products, such as series circuits incorporating switches, bulbs and buzzers. To apply their understanding of computing to program	To develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views. **Making** To produce detailed lists of tools, equipment and materials. Formulate step-by-step plans and, if appropriate, allocate tasks within a team. To 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. **Evaluating** To compare the final product to the original design specification. To test products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose. Consider the views of others to improve their work. To investigate famous manufacturing and engineering companies relevant to the project. **Technical knowledge and understanding** To understand that mechanical and electrical systems have	To generate and develop innovative ideas and share and clarify these through discussion. To communicate ideas through annotated sketches, pictorial representations of electrical circuits or circuit diagrams. **Making** To formulate a step-by-step plan to guide making, listing tools, equipment, materials and components. To competently select and accurately assemble materials, and securely connect electrical components to produce a reliable, functional product. To create and modify a computer control program to enable an electrical product to work automatically in response to changes in the environment. **Evaluating** To continually evaluate and modify the working features of the product to match the initial design specification. To test the system to demonstrate its effectiveness for the intended user and purpose. To investigate famous inventors who developed ground-breaking electrical

				To know and use technical vocabulary relevant to the project.	and control their products. To know and use technical vocabulary relevant to the project.	an input, process and an output. To understand how gears and pulleys can be used to speed up, slow down or change the direction of movement. To know and use technical vocabulary relevant to the project.	systems and components. **Technical knowledge and understanding** To understand and use electrical systems in their products. To apply their understanding of computing to program, monitor and control their products. To know and use technical vocabulary relevant to the project.
Structures	**Designing** To begin to generate ideas using pictures and simple words. To make simple plans of their intended products. **Making** To use construction kits to build walls, towers and frameworks. To use basic tools such as scissors or hole punches with construction materials e.g. plastic, card. use different methods of joining card and paper. **Evaluating** To recognise characteristics of familiar products. To explain in simple terms their own work and the work of others. To describe how their product and the products of others work	N/A (Sculpture themed unit in Art and Design)	**Designing** To generate ideas based on simple design criteria and their own experiences, explaining what they could make. To develop, model and communicate their ideas through talking, mock-ups and drawings. **Making** To plan by suggesting what to do next. To select and use tools, skills and techniques, explaining their choices. To select new and reclaimed materials and construction kits to build their structures. To use simple finishing techniques suitable for the structure they are creating. **Evaluating** To explore a range of existing freestanding	N/A (Sculpture themed unit in Art and Design)	N/A	**Designing** To carry out research into user needs and existing products, using surveys, interviews, questionnaires and web-based resources. To develop a simple design specification to guide the development of their ideas and products, taking account of constraints including time, resources and cost. To generate, develop and model innovative ideas, through discussion, prototypes and annotated sketches. **Making** To formulate a clear plan, including a step-by-step list of what needs to be done and lists of resources to be used. To competently select from and use appropriate tools to	N/A

	Technical knowledge & understanding To explain what they are making and which tools they are using. To describe some of the characteristics of the materials they are using.		structures in the school and local environment e.g. everyday products and buildings. To evaluate their product by discussing how well it works in relation to the purpose, the user and whether it meets the original design criteria. **Technical knowledge & understanding** To know how to make freestanding structures stronger, stiffer and more stable. To know and use technical vocabulary relevant to the project.			accurately measure, mark out, cut, shape and join construction materials to make frameworks. To use finishing and decorative techniques suitable for the product they are designing and making. **Evaluating** To investigate and evaluate a range of existing frame structures. To critically evaluate their products against their design specification, intended user and purpose, identifying strengths and areas for development, and carrying out appropriate tests. To research key events and individuals relevant to frame structures. **Technical knowledge and understanding** To understand how to strengthen, stiffen and reinforce 3-D frameworks. To know and use technical vocabulary relevant to the project.	
Textiles	**Designing** To begin to generate ideas about what they could make using pictures and simple words. To make simple plans or mock-ups of their intended products.	**Designing** To design a functional and appealing product for a chosen user and purpose based on simple design criteria. To generate, develop, model and communicate their ideas as appropriate	N/A (Textiles themed unit in Art and Design)	**Designing** To generate realistic ideas through discussion and design criteria for an appealing, functional product fit for purpose and specific user/s.	N/A (Textiles themed unit in Art and Design)	N/A	N/A (Textiles themed unit in Art and Design)

	Making To explore and use different fabrics. To cut and join fabrics with simple techniques. To use a simple tools and equipment (scissors) to perform practical tasks such as cutting. **Evaluating** To think about how their simple products will be used. To begin exploring existing simple textile products relevant to the project being undertaken. **Technical knowledge and understanding** To begin to understand how to join fabrics using simple techniques such as gluing and stapling. To begin to explore simple finishing techniques such as to using painting or fabric crayons, To begin to know and use simple technical vocabulary relevant to the project.	through talking, drawing, templates, mock-ups and information and communication technology. **Making** To select from and use a range of tools and equipment to perform practical tasks such as marking out, cutting, joining and finishing. To select from and use textiles according to their characteristics. **Evaluating** To explore and evaluate a range of existing textile products relevant to the project being undertaken. To evaluate their ideas throughout and their final products against original design criteria. **Technical knowledge and understanding** To understand how simple 3-D textile products are made, using a template to create two identical shapes. To understand how to join fabrics using different techniques *example*: running stitch, glue, over stitch, stapling. To explore different finishing techniques e.g. using painting, fabric crayons, stitching, sequins, buttons and ribbons. To know and use technical vocabulary relevant to the project.		To produce annotated sketches, prototypes, final product sketches and pattern pieces. **Making** To plan the main stages of making. To select and use a range of appropriate tools with some accuracy e.g. cutting, joining and finishing. To select fabrics and fastenings according to their functional characteristics e.g. strength, and aesthetic qualities e.g. pattern. **Evaluating** To investigate a range of 3-D textile products relevant to the project. To test their product against the original design criteria and with the intended user. To take into account others' views. To understand how a key event/individual has influenced the development of the chosen product and/or fabric. **Technical knowledge and understanding** To know how to strengthen, stiffen and reinforce existing fabrics. To understand how to securely join two pieces of fabric together.			

				To understand the need for patterns and seam allowances. To know and use technical vocabulary relevant to the project.			
Food	**Designing** To begin to generate simple ideas through exploring a variety of fruit and vegetables. To begin to communicate their ideas through pictures and simple words. **Making** To, with support, use simple utensils and equipment to cut, slice and squeeze soft fruit safely. To, with support, select from a collection of fruit and vegetables to create a chosen food product **Evaluating** To experience common fruit and vegetables, undertaking sensory activities example: investigating the appearance taste and smell. To describe their food product and the food products of others work To begin to evaluate their finished food products against simple design criteria. **Technical knowledge and understanding** To identify a range of familiar fruit and vegetables.	N/A	**Designing** To design appealing products for a particular user based on simple design criteria. To generate initial ideas and design criteria through investigating a variety of fruit and vegetables. To communicate these ideas through talk and drawings. **Making** To use simple utensils and equipment to e.g. peel, cut, slice, squeeze, grate and chop safely. To select from a curated collection of fruit and vegetables according to their characteristics e.g. colour, texture and taste to create a chosen product. **Evaluating** To taste and evaluate a range of fruit and vegetables to determine the intended user's preferences. To evaluate ideas and finished products against design criteria, including intended user and purpose. **Technical knowledge and understanding**	N/A	**Designing** To generate and clarify ideas through discussion with peers and adults to develop design criteria including appearance, taste, texture and aroma for an appealing product for a particular user and purpose. To use annotated sketches and appropriate information and communication technology, such as web-based recipes, to develop and communicate ideas. **Making** To plan the main stages of a recipe, listing ingredients, utensils and equipment. To select and use appropriate utensils and equipment to prepare and combine ingredients. To select from a range of ingredients to make appropriate food products, thinking about sensory characteristics. **Evaluating** To carry out sensory evaluations of a variety of ingredients and products. Record the evaluations using *example:* simple tables or simple graphs.	N/A	**Designing** To generate innovative ideas through research and discussion with peers and adults to develop a design brief and criteria for a design specification. To explore a range of initial ideas, and make design decisions to develop a final product linked to user and purpose. To use words, annotated sketches and information technology as appropriate to develop and communicate ideas. **Making** To write a detailed step-by-step recipe, including a list of ingredients, equipment and utensils To independently select and use appropriate utensils and equipment accurately to measure and combine appropriate ingredients. To independently make, decorate and present the food product appropriately for the intended user and purpose. **Evaluating** To carry out sensory evaluations of a range

	To begin to understand simple principles of a healthy and varied diet. To begin to know and use simple technical and sensory vocabulary relevant to the project.		To understand where a range of fruit and vegetables come from e.g. farmed or grown at home. To understand and use basic principles of a healthy and varied diet to prepare dishes, including how fruit and vegetables are essential elements of a healthy lifestyle. To know and use technical and sensory vocabulary relevant to the project.		To evaluate the ongoing work and the final product with reference to the design criteria and the views of others. **Technical knowledge and understanding** To know how to use appropriate equipment and utensils to prepare and combine food. To know about a range of fresh and processed ingredients appropriate for their product, and whether they are grown, reared or caught. To know and use relevant technical and sensory vocabulary appropriately.		of relevant products and ingredients To select an appropriate method to record the evaluations. To evaluate the final product with reference back to the design brief and design specification, taking into account the views of others when identifying improvements. To understand how key chefs have influenced eating habits to promote varied and healthy diets. **Technical knowledge and understanding** To know how to use a range of utensils and different equipment including heat sources to prepare and cook food. To understand about seasonality in relation to food products and the source of different food products. To know and use a range of relevant technical and sensory vocabulary.

National Curriculum Outcomes:

Key stage 1
Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home and school, gardens and playgrounds, the local community, industry and the wider environment].
When designing and making, pupils should be taught to:

Design
- 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

Make
- 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

Evaluate
- explore and evaluate a range of existing products
- evaluate their ideas and products against design criteria

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.

Key stage 2
Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment].
When designing and making, pupils should be taught to:

Design
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

Make

- 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

Evaluate

- 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

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.

Design and technology – key stages 1 and 2

Cooking and nutrition

As part of their work with food, pupils should be taught how cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door one of the great expressions of human creativity. Learning how cook is a crucial life skill that enables pupils feed themselves and others affordably and well, now and in later life.

Key stage 1

- use the basic principles of a healthy and varied diet prepare dishes
- understand where food comes from.

Key stage 2

- understand and apply the principles of a healthy and varied diet
- prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques
- understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.