Curriculum skills and progression map

Design and Technology

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6

EYFS National curriculum objectives			

Nursery

Autumn	Spring	Summer	
Construction – Children may decide to make something like a rocket/ car. They talk to the teachers about what they might need, look at photos on the ipad to discuss shapes and sometimes even draw their design with chalk. loose parts to make cars, rockets etc (tyres, wooden slats, funnels). Food – Baking cookies - stirring, adding ingredients Chocolate rice crispy cakes – solids and liquids Reindeer food - pouring, mixing Diwali – made streamers with sticks and ribbons – glue to attach, scissors to cut ribbon	Food – Pancakes Construction - Playdough and cork to make structures. Loose part area – structure/building – example farm yards. Textiles - Threading activities		

Reception

Autumn 1 – Food	Autumn 2 – moving Christmas pictures	Spring 1 - **Mechanical poster** Spring 2 – Making the jeep	Summer 1 – structures – minibeast homes Summer 2 – pirate ships	Evaluation/Assessment
Food To explore food preparation to make a soup Use tools with comfortable grip and good control.		Structure and mechanism – mechanical poster To hold scissors correctly and cut along zigzag and curved lines. To cut out large shapes	Food To explore food preparation techniques to make a sandwich To independently use a knife and fork and cut up food. Structure and mechanism – minibeast homes.	

Structure and mechanisms – moving Christmas picture To explore different techniques for joining materials To hold easy grip scissors correctly and make snips in paper..	Structure and mechanism – making a jeep To make and design models with a purpose To select materials for a purpose	Structure and mechanism – pirate ships To design and use a model To design and create a ship out of construction materials To cut out shapes in different papers, cards and materials.	

National curriculum objectives

Key stage 1 Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to 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 to 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.

Cooking and nutrition -As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life. Pupils should be taught to: **Key stage 1** use the basic principles of a healthy and varied diet to 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

	Year 1 / 2	Year 3/ 4	Year 5 / 6
Topic Units	Moving Pictures traditional tales. / Our fabric faces / Sensational salads Pirate Paddy's packed lunch problems structure / Dips and Dippers / Fabric bunting	Mechanical posters (lever and linkage mechanisms) - **Cycle B** The great bread bake off - **Cycle A** Edible gardens (planting and cooking) - **Cycle B**	Programming adventures (programming a floor robot) Global food (food around the world – link to science healthy food) Super seasonal cooking

		Lets go fly a kite (structures strengthening and stiffening) - **Cycle A** Battery operated lights (circuits link to science) - **Cycle A** Juggling balls (design and make) - **Cycle B**	Automata animals (mechanical systems) Felt phone cases Marvellous structures (strengthening structures)
Knowledge	**Structure and mechanisms:** Children will know what makes a structure stable. Children know that there are different structures and can explore so they know how they are made stronger, stiffer and more stable. They know there are different mechanisms for example, levers, sliders, wheels and axles, in their products. Children know how to create a moving picture. Children know what mechanisms make a picture move including a leavers, wheels and sliders. **Food:** Children know how to use a range of kitchen hand tools safely. Children know what the different food groups are and the different foods that are in those categories. Children know what a varied and healthy diet is. Children know that food can be grown, caught or brought. Children understand that food can come from different places. Children know how about the health and safety of preparing food. (e.g. washing hands) **Textiles:** Children should know that different materials have different properties and characteristics. Children know how materials can be manipulated in different ways and added together using glue, stitching. Children will know what a running stich is and can use it. Children will know the names of the tools they are using (needle, thread etc)	**Structure and mechanisms:** Children know how to strengthen, stiffen and reinforce more complex structures. Children know and understand how to use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]. Children know and understand that electrical systems are a circuit and know components of a circuit. [for example, series circuits incorporating switches, bulbs, buzzers and motors]. Children know and understand that products can be controlled by using a computer programme. Children know how to strengthen, stiffen and reinforce more complex structures in order to create more useful characteristics of products Children know and understand how mechanical and electrical systems have an input and output process. Children know how simple electrical circuits can be represented. Children know how mechanical systems such as levers and linkages create movement. **Food:** Children know the history of bread and why it is an important food type. Children know what food category bread fits into. Children know about bread around the world and how it differs. Children know the basic breads ingredients and how it is made. Children know that bread can be altered by using different ingredients to make it sweet or savory. Children know what makes a balanced meal. Children know how to plant and care for crops to yield food. Children know why its important to measure accurately their ingredients for cooking. Children know how about the health and safety of preparing food. (e.g. washing hands) **Textiles:** Children know and understand that materials have both functional properties and aesthetic qualities. Children know why shape is important for flight.	**Structure, mechanisms and technology.** Children know and understand how to strengthen, stiffen and reinforce more complex structures. Children know and understand how to use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]. Children know and understand how to use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]. Children know and can apply their understanding of computing to program, monitor and control their products. Children know and understanding of how to strengthen, stiffen and reinforce more complex structures in order to create more useful characteristics of products. Children know and understand and demonstrate that mechanical and electrical systems have an input, process and output. Children know how mechanical systems, such as cams, create movement and use mechanical systems in their products. Children know and apply their understanding of computing to program, monitor and control a product. Children know how to join materials depending on their properties. Children know different cutting and shaping techniques. Children know and understand that materials have both functional properties and aesthetic qualities. Children know that prior to designing products it is important to develop a design criteria centered on target audience and design brief. **Food:** Children know what seasonality means. Children know when different fruits and vegetables are in season in the UK. Children know the food groups. Children know what a balanced meal consists of. Children know where and how ingredients are grown, reared, caught and processed and some regions of the UK specify in some ingredients. Children know how food should be stored and handled safely. Children know about the health and safety of preparing food. **Textiles:** Children know products are designed for a target market. Children know at least two different types of stitching. Children know and understand that materials have both functional properties and aesthetic qualities. Children know that materials need to be measured and marked before cutting. Children know that paper templates are important before making the product. Children know how to use back stitch. Children know why it is important to be precise when measuring, cutting and stitching.
Designer/ innovator	Sensational salads - Link to science - eat well plate	Let's go fly a kite – Orville and Wilbur Wright, Benjamin Franklin, Alexander Graham Bell and Leonardo da Vinci. Battery operated lights – Alexander Graham Bell. Thomas Edison	Structures – bridges, looking at local bridges and builders Thomas Telford, Abraham Darby

		Juggling balls – Cinquevalli (used them) Juggling history going back to ancient civilization	
Design	Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing. They should work in a range of relevant contexts [for example, school, gardens and playgrounds, the local community, industry and the wider environment]. Children design purposeful, functional, appealing products for themselves and other users based on design criteria. They generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology. Children can: a use their knowledge of existing products and their own experience to help generate their ideas; b design products that have a purpose and are aimed at an intended user; c explain how their products will look and work through talking and simple annotated drawings; d design models using simple computing software; e plan and test ideas using templates and mock-ups; f understand and follow simple design criteria; g work in a range of relevant contexts, for example imaginary, story-based, school and the wider environment.	Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment]. Children 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. They generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design. Children can: a identify the design features of their products that will appeal to intended customers; b use their knowledge of a broad range of existing products to help generate their ideas; c design innovative and appealing products that have a clear purpose and are aimed at a specific user; d explain how particular parts of their products work; e use annotated sketches and cross-sectional drawings to develop and communicate their ideas; f when designing, explore different initial ideas before coming up with a final design; g when planning, start to explain their choice of materials and components including function and aesthetics; h test ideas out through using prototypes; use computer-aided design to develop and communicate their ideas i develop and follow simple design criteria; j work in a broader range of relevant contexts, for example entertainment, the home, school, leisure, food industry and the wider environment.	Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment]. Children 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. They generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer- aided design. Children can: a use research to inform and develop detailed design criteria to inform the design of innovative, functional and appealing products that are fit for purpose and aimed at a target market; b use their knowledge of a broad range of existing products to help generate their ideas; c design products that have a clear purpose and indicate the design features of their products that will appeal to the intended user; d explain how particular parts of their products work; e use annotated sketches, cross-sectional drawings and exploded diagrams (possibly including computer-aided design) to develop and communicate their ideas; f generate a range of design ideas and clearly communicate final designs; g consider the availability and costings of resources when planning out designs; h work in a broad range of relevant contexts, for example conservation, the home, school, leisure, culture, enterprise, industry and the wider environment.
Make	Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of making. Children select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]. They select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. Children can: Planning a with support, follow a simple plan or recipe; b begin to select from a range of hand tools and equipment, such as scissors, graters, zesters, safe knives, juicer; c select from a range of materials, textiles and components according to their characteristics; Practical skills and techniques d learn to use hand tools and kitchen equipment safely and appropriately and learn to follow hygiene procedures; e use a range of materials and components, including textiles and food ingredients; f with help, measure and mark out; g cut, shape and score materials with some accuracy; h assemble, join and combine materials, components or ingredients; i demonstrate how to cut, shape and join fabric to make a simple product; j manipulate fabrics in simple ways to create the desired effect; k use a basic running stich; l cut, peel and grate ingredients, including measuring and weighing ingredients using	Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of making. Children select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] accurately. They 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. Children can: Plan a with growing confidence, carefully select from a range of tools and equipment, explaining their choices; b select from a range of materials and components according to their functional properties and aesthetic qualities; c place the main stages of making in a systematic order; Practical skills and techniques d learn to use a range of tools and equipment safely, appropriately and accurately and learn to follow hygiene procedures; e use a wider range of materials and components, including construction materials and kits, textiles and mechanical and electrical components; f with growing independence, measure and mark out to the nearest cm and millimeter; g cut, shape and score materials with some degree of accuracy; h assemble, join and combine material and components with some degree of accuracy; i demonstrate how to measure, cut, shape and join fabric with some accuracy to make a simple product; j join textiles with an appropriate sewing technique;	Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of making. Children select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately. They 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. Children can: Plan a independently plan by suggesting what to do next; b with growing confidence, select from a wide range of tools and equipment, explaining their choices; c select from a range of materials and components according to their functional properties and aesthetic qualities; create step-by-step plans as a guide to making; Practical skills and techniques e learn to use a range of tools and equipment safely and appropriately and learn to follow hygiene procedures; f independently take exact measurements and mark out, to within 1 millimeter; g use a full range of materials and components, including construction materials and kits, textiles, and mechanical components; h cut a range of materials with precision and accuracy; i shape and score materials with precision and accuracy; j assemble, join and combine materials and components with accuracy; k demonstrate how to measure, make a seam allowance, tape, pin, cut, shape and

	measuring cups; m begin to use simple finishing techniques to improve the appearance of their product, such as adding simple decorations.	k begin to select and use different and appropriate finishing techniques to improve the appearance of a product such as hemming, tie-dye, fabric paints and digital graphics.	join fabric with precision to make a more complex product; l join textiles using a greater variety of stitches, such as backstitch, whip stitch, blanket stitch; m refine the finish using techniques to improve the appearance of their product, such as sanding or a more precise scissor cut after roughly cutting out a shape.
Evaluate	Children explore and evaluate a range of existing products. They evaluate their ideas and products against design criteria. Children can: a explore and evaluate existing products mainly through discussions, comparisons and simple written evaluations; b explain positives and things to improve for existing products; c explore what materials products are made from; d talk about their design ideas and what they are making; e as they work, start to identify strengths and possible changes they might make to refine their existing design; f evaluate their products and ideas against their simple design criteria; start to understand that the iterative process sometimes involves repeating different stages of the process.	Children investigate and analyse a range of existing products. They evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. They understand how key events and individuals in design and technology have helped shape the world. Children can: a explore and evaluate existing products, explaining the purpose of the product and whether it is designed well to meet the intended purpose; b explore what materials/ingredients products are made from and suggest reasons for this; c consider their design criteria as they make progress and are willing to alter their plans, sometimes considering the views of others if this helps them to improve their product; d evaluate their product against their original design criteria; evaluate the key events, including technological developments, and designs of individuals in design and technology that have helped shape the world.	Children investigate and analyse a range of existing products. They evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. They understand how key events and individuals in design and technology have helped shape the world. Children can: a complete detailed competitor analysis of other products on the market; b critically evaluate the quality of design, manufacture and fitness for purpose of products as they design and make; evaluate their ideas and products against the original design criteria, making changes as needed.
Vocabulary	build structures Stronger Stiffer Stable mechanisms Levers Sliders Axles Product joining product reinforce cut fasten joint textile fabric material running stich Food groups varied diet health hygiene ingredients produce recipe Design, criteria, evaluate, function, template	Strengthen, stiffen, reinforce, structures, mechanical systems, products, gears, pulleys, cams, leavers, dowel, linkages, motions, pivot, hinge, bridge, electrical system, circuit, component, switch, bulb, buzzer, motor, streamline Food groups, varied diet, health, hygiene, ingredients, produce, recipe Design, criteria, evaluate, function, template	input, output, programme, control, function, prototype, cams, motion, components, mechanism, Design, criteria, evaluate, function, template.