

Progression of skills and knowledge in Design and Technology

Developing, planning and communicating ideas

Year	National Curriculum	Skills	Knowledge	Key Vocabulary	
group					
N R	See EYFS Design and Technology knowledge organisers				
1	 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 	 Draw on their own experience to help generate ideas. Suggest ideas and explain what they are going to do. Model their ideas in card/paper. 	 Know that before something is made, it has to be designed. Know that products are usually made in factories, often by machinery but sometimes by hand (people). 	designed, design, designers, product, audience, factories, machinery, idea	
2	 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 	 Generate ideas by drawing on their own experiences. Develop their ideas through discussion, observation, drawing and modelling. Identify a purpose and target group for their product and a simple design criteria. Make simple drawing s and label parts. 	 Know that a product has to be designed for a reason/ purpose and audience Know that the chosen design is always discussed and improved before the final design is chosen. Know that products are usually made in factories, often by machinery but sometimes by hand (people). Develop, model and communicate ideas through talking, mock-ups and drawing. 	designed, design, designers, reason, purpose, product, audience, improved, final design, factories, machinery, manually	
3	• Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed	 Generate ideas for an item, considering its purpose and audience. Identify a design criteria for a successful product. 	 Know that research is used and carried out in order to inform the design of a product. Know that there can be a number of different reason/ purposes/ target groups/ key audiences a product is 	reasons, purposes, target groups, key audience, product, designed, design, design criteria, outcomes, research,	

	 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 	 Plan the order of their work, with adult support. Explore, develop and communicate design ideas. Make drawings with labels. 	 designed for and understand the reasons why. Know how to start using research to inform basic design criteria. Know that the chosen design is always discussed and improved before the final design is chosen. 	final design, improved, modified, produce, annotation, design features
4	 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 and annotated sketches. 	 Generate ideas, considering its purpose. Make labelled drawings and begin to think about different views. Develop a clear idea of what has to be done, planning all elements and suggesting alternative methods. Evaluate existing products and identify criteria that can be used for their own design. 	 Know how to develop own design criteria for a product. Know how to use annotation in order to communicate design features and ensure design criteria has been met. Know how to carry out own research in order to inform the design of a product. Know that from this, design criteria are created in order for the product to meet the outcomes from the research. Know what design criteria are Know how to suggest ways in which a design can be improved/ modified. Know how to produce more than one design through drawing. 	reasons, purposes, target group, key audience, product, design, designed, research, inform, product, design criteria, outcomes, improved, modified, produce, annotation, design features
5	 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 and annotated sketches. 	 Generate ideas through brainstorming and identify a purpose for their product. Draw a specification for their design. Plan a clear idea of what has to be done, what resources are needed and suggest alternative methods of making if the first one fails. 	 Know the key audience for whom you are designing your enterprise product for. Know and understand the target group/ key audience in order to develop a suitable product for them. Know how to use a set of design criteria based on research surrounding the target group/ key audience. 	key audience, designing, enterprise product, target group, product, design criteria, research, prototype, diagrams, process, Computer Aided Design, 2D designs, 3D designs
6	• Use research and develop design criteria to inform the design of innovative,	 Communicate their ideas through detailed labelled drawings. 	 Know what a prototype is. Know how to use Computer Aided Design to make a 2D or 3D design. 	key audience, designing, enterprise product,

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 and computer-aided design.	 Develop a design specification. Explore, develop and communicate parts of their design by modelling their ideas. Plan the order of their work, choosing appropriate materials, tools and techniques. If relevant, apply their understanding of computing to program, monitor and 	target group, product, design criteria, research, prototype, diagrams, process, Computer Aided Design, 2D designs, 3D designs
	to program, monitor and control their products, aimed towards their audience.	

Working with tools, equipment, materials and components to make products

Year	National Curriculum	Skills	Knowledge	Key Vocabulary
group				
Ν		See EYFS Design and Technology k	nowledge organisers	
R				
1	 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 	 Begin to make their design using appropriate techniques. With support, measure, mark out, cut and shape a range of materials. Assemble, join and combine materials using a variety of temporary methods eg glue/ tape. Select and use appropriate fruit and vegetables, process and tools. Explore objects and designs to identify likes and dislikes of the designs Begin to use simple finishing techniques to improve the appearance of their product. 	 Know how to correctly hold a pair of scissors. Know how to cut accurately along different sizes and shapes of lines. Know that tracing (of simple lines using pencil) can be used to develop fine motor skills. Know that there are different ways to join materials (e.g. glue, sellotape and blutack). 	sizes, shapes, lines, tracing, simple lines, fine motor skills, join, materials, glue, sellotape, blu-tack, thread, equipment, hole punched holes

2	 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 	 Begin to select tools and materials, using vocabulary to name and describe them. Measure and cut with some accuracy. Learn to use hand tools safely and appropriately. Cut, shape and join fabric. Assemble, join and combine materials to make a product. Start to choose and use appropriate finishing techniques based on own ideas. 	 Know that product designs can be made out of a range of materials. Know that certain materials are used for a specific purpose and are chosen for those reasons. Know that tracing (of simple lines, shapes and patterns using pencil) can be used to make a template. Know how to create differently shaped templates (using tracing and scissors). Know how to cut accurately along lines and around template shapes using scissors. 	product, designs, materials, purpose, tracing, simple lines, shapes, patterns, template, create, cut, scissors, investigate, methods, joining, equipment,
3	 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 	 Select tools and techniques for making their product. Measure, mark out, cut, score and assemble components with more accuracy. Work safely and accurately with simple tools. Measure, tape, pin, cut and join fabric with more accuracy. Demonstrate hygienic food preparation and storage. Use finishing techniques to improve the appearance of their product, including using ICT. Explain their choice of tools and equipment in relation to the skills and techniques they will be using. Start to think about their ideas as they make progress and be willing to change things if this helps them to improve their work 	 Know how to cut, fold, trace and shape accurately in order to produce a finished product. Know what reclaimed and recycled materials are. Know how to create a simple lever slider for a pop-up book/card. Know how to join and finish accurately by selecting and using a wide range of tools and equipment. 	Reclaimed, recycled, cut, fold, trace, shape, product, create, simple lever slider, pop-up book/card, join, finish, lever, measure, score, components
4	 Select from and use a wider range of tools and equipment to 	 Select a wider range of appropriate tools and techniques for making their product safely. 	 Know how to measure, mark out, cut and shape a range of materials, 	cut, fold, trace, shape, produce, product, create,

	 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 	 Measure, mark out, cut and shape a range of materials using tools, techniques and equipment. Join and combine materials more accurately in temporary and permanent ways. Measure, tape, pin, cut and join materials with some accuracy. Use simple graphical communication techniques – maths link. Use finishing techniques to strengthen and improve the appearance of their product using a range of equipment including ICT. 	using appropriate tools, equipment and techniques. • Know different ways to join materials temporarily and permanently.	simple lever slider, pop-up book/card, join, finish, tools, equipment, make, equipment, techniques, reinforce, strengthen,
5	 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 	 Select appropriate materials, tools and techniques. Measure and mark out more accurately. Use a variety of tools and equipment accurately and safely. Weigh and measure accurately (time, dry ingredients and liquids). Apply the rules for basic food hygiene and other safe practises - eg use of an oven. Cut and join with accuracy to ensure a good quality finish to the product. Demonstrate how to use skills in using different tools and equipment safely and accurately with growing confidence. 	 Know how to consider functional and aesthetic properties. Know what is important to consider to measure accurately. Know what is needed for basic food hygiene. 	designs, investigate, investigations, thread materials, tools, components, functional, aesthetic properties
6	 Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, 	 Confidently select appropriate tools, materials, components and techniques. Assemble components to make working models. Use tools safely and accurately. 	 Know how to consider functional and aesthetic properties. Know how to use tools safely. Know which joining techniques are best and provide permanence. 	designs, investigate, investigations, tools, components, functional, aesthetic properties

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	 Construct products using permanent joining techniques. Make modifications as they go along. Aim to make and to achieve a quality product. 	
properties and aesthetic qualities		

Evaluating processes and products

Year	National Curriculum	Skills	Knowledge	Key Vocabulary
group				
Ν		See EYFS Design and Technology k	nowledge organisers	
R				
1	 Explore and evaluate a range of existing products Evaluate their ideas and products against design criteria 	 Begin to verbally evaluate their product, discussing how well it works. Identify strengths and possible changes. Start to evaluate their product by discussing how well it works in relation to the purpose (design criteria). When looking at existing products explain what they like and dislike about products and why. 	 Know that it is important to evaluate a product to learn and make it better next time. 	Make better, What went well
2	 Explore and evaluate a range of existing products Evaluate their ideas and products against design criteria 	 Evaluate against their own design criteria, and, with more confidence, talk about what they like and dislike. Begin to record. Start to evaluate their products as they are developed, identifying strengths and possible changes they might make. Look at a range of existing products explain what they like and dislike about products and why. 	 Know that it is important to evaluate a product to learn and make it better next time. Know that we can learn by listening to others' ideas and opinions. 	evaluate, strengths, improve product

3	 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 	 Evaluate their product – how well does it meet its purpose? Begin to disassemble and evaluate familiar products and consider the views of others to improve them Know how to evaluate own work in terms of strength and make suggestions. Start to evaluate their product against original design criteria e.g. how well it meets its intended purpose 	 Know that a product has a purpose and we evaluate it to see if it has fulfilled that purpose. Know that a success criteria helps us to evaluate success and see what we can do better next time. Know that it is important to evaluate a product to learn and make it better next time. Know that we can learn by listening to others' ideas and opinions. 	net, disassemble, packaging, shapes, strength, materials, evaluate, suggestions
4	 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 	 Start to evaluate their work both during and at the end of the assignment. Evaluate their product carrying out simple tests. Disassemble and evaluate existing products. 	 Know that a product has a purpose and we evaluate it to see if it has fulfilled that purpose. Know that a success criteria helps us to evaluate success and see what we can do better next time. Know that it is important to evaluate a product as we go along so we can make improvements. Know that we can learn by listening to others' ideas and opinions. 	net, disassemble, packaging, shapes, evaluate, durability, net design, strength, materials, suggestions
5	 Investigate and analyse a range of existing products decorative techniques, project Evaluate their ideas and products against their own design criteria and consider 	 Evaluate their product against the original design specification Evaluate both during and at the end of the assignment. Personally evaluate and seek evaluation from others. Disassemble and evaluate existing products. 	 Know what design specifications are. Know that we can evaluate success by looking at original design specifications. Know that seeking evaluation from others can help improve a product next time. 	decorative techniques, project, finishing techniques, triangulation, strength, evaluate, critically, improve, suggestions, design

	 the views of others to improve their work Understand how key events and individuals in design and technology have helped shape the world 		 Know that evaluating during an assignment means that it can be improved as we go. Know that disassembling a product means you can see strengths and things to improve in more detail. 	criteria/target group
6	 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 	 Evaluate their products, identifying strengths and areas for future development. Carry out appropriate tests. Evaluate their product against the original design specification. Disassemble and evaluate existing products. Evaluate against their original criteria and suggest ways that their product could be improved. Evaluate their work both during and at the end of the assignment. Record their evaluations using drawings with labels 	 Know what design specifications are. Know that we can evaluate success by looking at original design specifications. Know that seeking evaluation from others can help improve a product next time. Know that evaluating during an assignment means that it can be improved as we go. Know that disassembling a product means you can see strengths and things to improve in more detail. 	decorative techniques, project, finishing techniques, triangulation, strength, evaluate, critically, improve, suggestions, design criteria/target group

Electrical Systems

Year	National Curriculum	Skills	Knowledge	Key Vocabulary	
group					
N		See EYFS Design and Technology k	nowledge organisers		
R					
1					
2					
3					
4	Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors].	 I can create simple and parallel circuits. Explore and explain how the direction and speed of an electrical motor can be controlled. Explore and program a simple control device. Explore and describe how electrical circuits can be created and controlled. 	 I know the hazards and safety issues associated with electricity. I know a variety of output devices e.g. motors, bulbs etc. and can explain what they do. I know the difference between parallel and simple circuits. 	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.	
5					
6	Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors].	 I can create circuits using electronics kits that employ a number of components with increasing confidence. I can control outputs such as motors. I can apply computing and use of electronics to embed intelligence in products that respond to inputs. 	 I know a variety of output devices e.g. motors, bulbs etc. and can explain what they do. I know that it is important to plan out a design first, before creating it. I know how to use simple algorithms to control outputs. 	Bulb, bulb holder, battery, battery holder, USB cable, wire, insulator, conductor, crocodile clip control, program, system, input device, output device, series circuit, parallel circuit	

Mechanisms

Year group	National Curriculum	Skills	Knowledge	Key Vocabulary
N		See EYFS Desian and Technoloay k	nowledae oraanisers	
R		······································		
1	Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.	 I can construct a simple slider independently. Explore and use wheels, axles and axle holders. Deconstruct a simple slider and describe how it works. 	 I know that different mechanisms produce different types of movement. I know and use technical vocabulary relevant to the project. 	slider, lever, pivot, slot, bridge/guide, card, masking tape, paper fastener, join, pull, push, up, down, straight, curve, forwards, backwards vehicle, wheel, axle, axle holder, chassis, body, cab
2				
3				
4	Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]	 I can create a range of sliders and levers to produce horizontal and vertical movement. I can combine sliders and levers to produce a range of movements. 	 I know what a pivot is and its importance. I know a range of different slider and lever possibilities. I know that movement can be horizontal, vertical or rotate. I know a range of fixings for pivots and levers. I know the effect of a fixed and loose pivot. 	Slider, lever, horizontal, vertical, pneumatic, rotary, motion, linear
5				
6	Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]	 I can construct and use compound gear trains to drive mechanical systems from a motor. I can cut, saw and drill a range of materials. I can fix mechanical systems, allowing for movement. 	 Know how to consider functional and aesthetic properties. Know how to use tools safely. Know which joining techniques are best and provide permanence. 	simple pulley system, designs, investigate, investigations, mechanical, motor, drill.

Textiles

Year	National Curriculum	Skills	Knowledge	Key Vocabulary
group		Coo FVEC Design and Tooknology by		
R	See EYFS Design and Technology knowledge organisers			
1				
2	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	 I can cut and join fabrics using a running stitch. I can decorate fabric by applying beads and sequins. I can use a simple pattern with increasing accuracy. 	 I know the similarities and differences between textiles based on the characteristics of an increasing range of materials. 	joining and finishing techniques, tools, fabrics, template, pattern pieces, mark out, join, decorate, finish running stich measure
3				
4				
5	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	 I can create objects that employ a seam allowance. I can join textiles with a combination of stitching techniques (e.g. back stitch for seams and running stitch to attach decoration). 	 Know how to choose a type of stitch for a purpose (e.g. cross stitch, running stitch, back stitch and whipping stitch). I can Identify the most effective finishing technique in order to maximise the aesthetic value of the product. 	seam, seam allowance, wadding, reinforce, right side, wrong side, hem, template, pattern pieces, name of textiles and fastenings used, pins, thread, pinking shears, fastenings, , small eyelet needle, stitch, purpose, cross stitch, running stitch, back stitch, whipping stitch.

Structures

Year	National Curriculum	Skills	Knowledge	Key Vocabulary
group		Coo EVEC Design and Technology IV		
IN D	See EYFS Design and Technology knowledge organisers			
<u>л</u> 1				
2	Build structures, exploring how they can be made stronger, stiffer and more stable	 I can deconstruct and assemble the net of basic 3D shapes. I can use materials to make simple joints, glue, tape and paper clips, masking tape. 	 I know how to investigate different methods for joining materials. I know how to make a structure more stable. 	Structure, stable, rigid, 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.
3	Apply their understanding of how to strengthen, stiffen and reinforce more complex structures	 I can make rectangular frames of different sizes using strip wood, reinforcing with cross braces. I can join 2D frames to create 3D structures. I can use a range of materials to make joints. 	 I know that certain reclaimed/ recycled materials can be used for a specific purpose in order to make a structure. 	reclaimed, recycled materials, purpose, structure.
4				
5				
6	Apply their understanding of how to strengthen, stiffen and reinforce more complex structures	 I can apply a range of finishing techniques, including those from art and design, to a broad range of materials including textiles, metals and woods. I can use a wider more complex range of materials, components and ingredients, taking into account their properties. 	 Know how to consider functional and aesthetic properties. Know how to use tools safely. Know which joining techniques are best and provide permanence. 	Member, cross brace, cantilever, frame structure, stiffen, strengthen, reinforce, triangulation, stability, shape,

•	I can make use of specialist equipment to	join, temporary,
	mark out materials.	permanent.
•	I can select the most appropriate method	
	to strength 3D structures and frames.	

Cooking and Nutrition

Year	National Curriculum	Skills	Knowledge	Key Vocabulary
group				
N		See EYFS Design and Technology k	nowledge organisers	
1	 Use the basic principles of a healthy and varied diet to prepare dishes Understand where food comes from. 	 I can cut and squeeze (soft foods) ingredients safely and hygienically. I can suggest healthy and unhealthy snacks and can say whether these are good or bad for you. 	 Know that meat comes from animals and fish comes from the sea. Know that vegetables and fruit come from plants in the earth. Know that dairy products such as yoghurt, cheese and milk come from animals. Know that some foods are bad because they contain lots of sugar or fat and can give some examples. Know which foods are healthy/ unhealthy on the eat well plate. Know how to hold a knife correctly using a simple bridge hold. Know how to peel, cut, chop and spread soft items such as bread, bananas, strawberries etc. 	meat, animals, fish, vegetables, fruit, plants, dairy products, yoghurt, cheese, milk, foods, sugar, fat, healthy, unhealthy, eat well plate, hold, knife, simple bridge hold, peel, cut, chop, spread, make
2				
3	 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. 	 I can plan a healthy sweet meal using knowledge of the eat well plate (containing fruit/s). I can demonstrate and use a range of cooking techniques when preparing and cooking dishes (e.g. chopping, kneading, grating and mixing). 	 Know the importance of planning before preparing and cooking a food dish. Know the difference between savoury and sweet foods. Know where different food products come from and how they are made using research to inform own planning (e.g. where foods are grown, farmed or caught). Know how to prepare and cook a dish following a pre- made plan or recipe. 	food health, safety, hygiene, health and safety rules, cooking, savoury foods, sweet foods, food products, research, plan, planning, grown, farmed, caught, eat well plate, carbohydrates, vegetables, fruits, key aspects, equipment, ingredients,

			 Know the key aspects of planning a dish (e.g. equipment, ingredients and instructions). 	instructions, preparing, cooking, prepare, cook, cooking techniques, chopping, kneading, grating, mixing
<u>4</u> 5	 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. 	 I can check when a food has been properly cooked. 	 Know the importance of cooking meat for the correct amount of time, based on packaging advice. Know how to demonstrate correct preparation of food products. 	preparation, food products, raw meats, stored, prepare, cooking, packaging, cooked, create, plan, prepare, cook, heat source, cooking techniques, chopping, kneading, grating, mixing.
6				