DESIGN AND TECHNOLOGY SKILLS PROGRESSION MAP ICKNIELD WALK FIRST SCHOOL

Year Group	EYFS	Year 1	Year 2	Year 3	Year 4
NC PROGRAMME OF STUDY AND EARLY LEARNING GOALS	Children at the expected level of development will: ELG: Creating with Materials Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function Share their creations, explaining the process they have used. Make use of props and materials when role playing characters in narratives and stories ELG: Fine Motor Skills Use a range of small tools, including scissors, paintbrushes and cutlery. Begin to show accuracy and care when drawing.	themselves and other generate, develop, in through talking, dra where appropriate, technology select from and use perform practical ta joining and finishing select from and use components, includi ingredients, accordine explore and evaluat evaluate their ideas build structures, exp stronger, stiffer and explore and use med wheels and axles], in	a wide range of materials and ng construction materials, textiles and ng to their characteristics e a range of existing products and products against design criteria loring how they can be made more stable chanisms [for example, levers, sliders, a their products.	innovative, functional, appeali aimed at particular individuals. generate, develop, model and discussion, annotated sketches diagrams, prototypes, pattern select from and use a wider respective perform practical tasks [for exfinishing], accurately select from and use a wider resincluding construction material according to their functional patents investigate and analyse a range evaluate their ideas and product and consider the views of othe understand how key events are technology have helped shape apply their understanding of the reinforce more complex struction understand and use mechanic example, gears, pulleys, cams, understand and use electrical example, series circuits incorporately in their understanding of control their products. understand and apply the principle prepare and cook a variety of a range of cooking techniques	communicate their ideas through s, cross-sectional and exploded pieces and computer-aided design ange of tools and equipment to ample, cutting, shaping, joining and ange of materials and components, als, textiles and ingredients, properties and aesthetic qualities are of existing products acts against their own design criteria ares to improve their work and individuals in design and the world ares al systems in their products [for levers and linkages] systems in their products [for orating switches, bulbs, buzzers and acciples of a healthy and varied diet predominantly savoury dishes using

	EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4
DESIGN	 Thinking and sharing ideas in groups. Finding ways to solve problems Explain what they are making and which materials they are using Select materials from a limited range that will meet simple design criteria e.g. shiny. Follow instructions Children follow instructions involving several ideas or actions. Begin to create their design using basic techniques, such as cutting and gluing. Use technical vocabulary where appropriate. 	 Work within a range of contexts - school, imaginary, story-based and the local environment. To design innovative, purposeful, functional, appealing products that have a clear purpose for themselves and other users based on design criteria. Generate ideas based on simple design criteria and their own experiences, explaining what they could make. Select a range of materials using simple design criteria. Develop, model and communicate ideas through talking, drawing, mock-ups (card and paper) and use information and communication technology. Draw and/or photograph existing products and label with the correct technical vocabulary. Explain how particular parts of their products work. 	 Work confidently within a range of contexts, such as imaginary, story-based, school and the wider environment. To design innovative, purposeful, functional and appealing products that have a clear purpose for themselves and other users based on design criteria. Generate ideas based on simple design criteria and their own experiences, explaining what they could make. Select a range of materials using a range of design criteria to help develop ideas and to select materials. Develop, model and communicate ideas through talking, drawing, mock-ups and use information and communication technology using technical vocabulary. Draw and/or photograph existing products and label with the correct technical vocabulary. Explain how particular parts of their products work. 	 Work confidently within a broader range of contexts, such as the home, school, leisure, culture, industry and the wider environment. To design innovative, purposeful, functional and appealing products that have a clear purpose and are aimed at a specific user/s. Generate realistic ideas through discussion and design criteria for an appealing, functional and purposeful product fit for purpose and specific user/s. Gather information about users' needs and wants, and develop design criteria to inform the design of products that are fit for purpose, aimed at particularly individuals or groups. Select a range of materials using a range of design criteria and to select materials. Generate ideas and their own design criteria, focusing on the needs of the user. To draw annotated sketches, pattern pieces, prototypes, draw final product sketches and use computer-aided design to develop, communicate and model their ideas using technical vocabulary. When planning, start to explain their choice of materials and components including function and aesthetics. 	 Work confidently within a broader range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment. To design innovative, purposeful, functional and appealing products that have a clear purpose and are aimed at a specific user/s. Generate realistic ideas through discussion and design criteria for an appealing, functional and purposeful product fit for purpose and specific user/s. Gather information about users' needs and wants, and develop design criteria to inform the design of products that are fit for purpose, aimed at particularly individuals or groups. Make design decisions that take account of the availability of resources. Generate ideas and their own design criteria, focusing on the needs of the user. To draw cross-sectional drawings, exploded diagrams, prototypes and use computer aided design to develop, communicate and model their ideas. When planning, start to explain their choice of materials and components including function and aesthetics.

	EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4
MAKE	 To use a variety of basic tools (scissors and hole punches) with construction materials (plastic, card etc.) To cut, join and finish using card. Begin to use scissors to cut straight and curved edges and hole punches to punch holes. Learn to use hand tools safely. Use construction kits to build walls, towers and frameworks. Assemble vehicles with moving wheels using construction kits. Explore moving vehicles through play To work with paper and card to make simple flaps and hinges. To have experience of simple cutting, shaping and joining skills using scissors, glue, paper fasteners and masking tape. 	 To select from and use a wide range of materials, components, including construction materials, according to their characteristics. To select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing – decorative paper/fabric paper or felt tip pens]. Measure, mark out, cut and shape paper and card. Assemble, join and combine materials, components or ingredients. Use tools safely. Plan by suggesting what to do next. Select and use tools, skills and techniques, explaining their choices. Select materials and construction to build structures. To fold card/paper in different ways. 	 To select from and use a wide range of materials, components, including construction materials, according to their characteristics. To select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]. Measure, mark out, cut and shape paper and card. Assemble, join and combine materials, components or ingredients. Begin to use simple finishing techniques to improve the appearance of their product — digital text and graphics, paint, felt tip pens or collage. Use tools safely. Plan by suggesting what to do next. Select and use tools, skills and techniques, explaining their choices. Select materials and construction kits to build their structures. To fold card or paper in different ways. 	 Use a wider range of materials and components than KS1, including construction materials and kits, textiles and food ingredients according to their characteristics. To select from and use a wider range of tools, components and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] accurately with paper and card. With growing independence, measure and mark out to the nearest cm and millimetre. Assemble, join and combine materials, components or ingredients. Select from and use finishing techniques suitable for the product they are creating. Use tools and equipment safely, appropriately and accurately. Order the main stages of making using a storyboard. Explain their choice of materials according to functional properties and aesthetic qualities. Practise using computeraided design (CAD) software to design the net, text and graphics for their products according to purposes. 	 Children select from and use a wider range of materials and components, including construction materials, textiles and ingredients and mechanical and electrical components according to their functional properties and aesthetic qualities. Measure and mark out to the nearest cm and millimetre. Cut, shape and score materials with some degree of accuracy. Assemble, join and combine materials and components or ingredients. Apply a range of finishing techniques. Learn to use a range of tools and equipment safely. Order the main stages of making into a systematic order. Explain their choice of tools and equipment in relation to the skills and techniques they will be using. Use simple classroom materials e.g. card, corrugated plastic, aluminium foil, paper fasteners and paper clips to make switches. Use CAD software.

Excluding Cooking

Materials (including finishing materials)

Paper Card

Plastic sheet Plastic Plastic tubing

Dowel Clothes Pegs Wood

Pipe cleaners
Containers
Cardboard boxes

Paper/plastic straws

Card discs MDF wheels

Cotton reels

Plastic/wooden wheels Decorative paper

Tools:

Left/right handed scissors

Hole punch Stapler

Thin/thick paintbrushes

Felt tip pens Junior hacksaw Paint

Construction Kits:

Lego K'nex

Wooden Blocks Mobilo

Joining Techniques:

Masking tape String/Staples PVA glue/stick glue Plasticine

Excluding Cooking

Materials (including finishing materials)

Paper Card

Card strips
Card rectangles
Plastic sheet

Paper/plastic straws Pipe cleaners

Containers
Cardboard boxes
Cotton reels

Thread

Tools:

Left/right handed scissors

Hole punch Stapler

Thin/thick paintbrushes
Threading Needles

Construction Kits:

Lego K'nex

Wooden Blocks

Joining Techniques:

Tape
String
PVA glue
Stick glue
Plasticine
Paper fasteners
Paper binders
Sewing

Excluding Cooking

Materials (including finishing materials)

Card strips
Card rectangles

Paper Card

> Squared paper Coloured paper Acetate sheet

Tools:

Left/right handed scissors

Rulers CAD Printer Felt tip pens

Construction Kits:

Kit parts with flat faces - polydron

Joining Techniques:

Masking tape
Paper fasteners
Paper binders
Stick glue
Adhesive Tape
PVA glue
Glue spreaders

Excluding Cooking

Materials (including finishing materials)

Paper Cardboard Coloured Paper Tin foil

Corrugated Plastic Reclaimed materials

Tools

Left/right handed scissors

Needles

Measuring tape Fabric paints Paints for printing Thin paint brushes

Felt tip pens CAD

Printer

Junior Hacksaws

Joining Techniques

Thread Tape Fabric glue Pins Masking tap

Masking tape
Paper fasteners
Paper binders
Stick glue
Adhesive Tape
PVA glue
Glue spreaders
Paper clips

Electrical Tools:

Buzzers, bulbs, bulb holders, batteries, battery holders, wire strippers, control program

	EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4
EVALUATE	 Show curiosity about objects, events and people. Question why things happen. Explore ideas by rearranging materials. Discuss their work as it progresses. 	Own Products Talk about their design ideas. Make simple judgements about their products and ideas against simple design criteria and in relation to the purpose and the user. As they work, start to identify strengths and possible changes. Write a simple evaluation about own product — likes and dislikes. Existing Products Discuss: what products are for, what products are for, what products are for, how products work, how products are used, where products might be used, what materials products are made from and what they like and dislike about products. Use their knowledge of existing products and their own experiences to generate ideas	Own Products Talk about their design ideas. Make simple judgements about their products and ideas against simple design criteria and in relation to the purpose and the user. As they work, start to identify strengths and possible changes they might make to refine their existing design Start to understand that the iterative process sometimes involves repeating different stages of the process. Write own evaluations about own product — do like/don't like and any changes made Existing Products Discuss: what products are, who products are for, what products are for, how products are for, how products are used, where products might be used, what materials products are made from and what they like and dislike about products. Write simple evaluations about an existing product Explain how to improve existing products. Use their knowledge of existing products and their own experience to help generate their ideas.	Own Products • Identify the strengths and areas for development in their ideas and products. • Use design criteria and user	Own Products Identify the strengths and areas for development in their ideas and products. Use design criteria and user needs to evaluate their completed products and make/alter plans. Take into account others views to improve their work. Test their product against the original design criteria and with the intended user. Evaluate final product against the intended purpose and with the intended user, drawing on design criteria. Existing Products Discuss: how well products have been designed/made, why materials have been chosen, what methods of construction have been used and how well they work, do products achieve their purposes, do products meet user needs, who designed/made the products, where/when products were designed and can products be recycled or reused. Gather information about existing products available relating to your product.

	EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4
TECHNICAL KNOWLEDGE	 To safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. To represent their own thoughts, feelings and ideas through design and technology. To use their senses to explore the world around them. Children recognise that a range of technology is used in places such as homes and schools. To select and use technology for particular purposes. 	 Talk about and start to understand the simple working characteristics of materials and components. Know how to make freestanding structures stronger, stiffer and more stable. Understand where a range of fruit or vegetables come from e.g. farmed or grown at home. Understand and use basic principles of a healthy and varied diet to prepare dishes. Explore different finishing techniques. Explore and use wheels, axels and axel holders. Start to understand how maths and science can support learning in lessons. Understand the correct technical and sensory vocabulary for the projects they are undertaking. 	 Talk about and start to understand the simple working characteristics of materials and components. Explore sliders and levers. Understand that different mechanisms produce different types of movement. Know how to make freestanding structures stronger, stiffer and more stable. Understand how simple 3D textile products are made, using a template to create two identical shapes. Explore different finishing techniques. Understand where a range of fruit or vegetables come from e.g. farmed or grown at home. Understand and use basic principles of a healthy and varied diet to prepare dishes. Start to understand how maths and science can support learning in lessons. Understand the correct technical vocabulary for the projects they are undertaking. 	 Know how to use learning from mathematics and science to help design and make products that work. Understand and use lever and linkage systems. Know about a range of fresh and processed ingredients appropriate for their product and whether they are grown, reared or caught. Know how to use appropriate equipment and utensils to prepare and combine food. Understand the correct technical and sensory vocabulary for the projects they are undertaking. Develop and use knowledge of how to construct stiff, strong shell structures. Develop and use knowledge of 3D shapes to make a structure. Understand that materials have both functional properties and aesthetic qualities. 	 Know how to strengthen and stiffen and reinforce existing fabrics. Understand how to join two pieces of fabric securely together. Understand that materials have both functional properties and aesthetic qualities. Know how to use learning from mathematics and science to help design and make products that work. Develop and use knowledge of how to construct stiff, strong structures. Know about a range of fresh and processed ingredients appropriate for their product and whether they are grown, reared or caught. Know how to use appropriate equipment and utensils to prepare and combine food. Understand the correct technical and sensory vocabulary for the projects they are undertaking. Understand and use electrical systems in their products. Apply their understanding of computing to program and control their products.

	EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4
MECHANISMS	 Assembled vehicles with moving wheels using construction kits. Explored 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. Early experiences of working with paper and card to make simple flaps and hinges. Experience of simple cutting, shaping and joining skills using scissors, glue, paper fasteners and masking tape. 	 Explore and use wheels, axles and axle holders. Distinguish between fixed and freely moving axles. Draw an example of a wheeled product, stating the user and purpose, and labelling the main parts e.g. body, chassis, wheels, axles and axle holders. Using construction kits with wheels and axles, ask children to make a product that moves. Mark out, hold, cut and join materials and components correctly with paper and card (see make section above). Discuss how the children might add finishing techniques to their product with reference to their design ideas and criteria (see make section above). 	 Explore and use sliders and levers. Understand that different mechanisms produce different types of movement. Demonstrate simple levers and sliders to the children using prepared teaching aids. Following teacher demonstration of the correct use of tools and materials, children should develop their knowledge and skills by replicating the slider and lever teaching aids. Encourage children to add pictures to their mechanisms. Mark out, hold, cut and join materials and components correctly with paper and card (see make section above). Discuss how the children might add finishing techniques to their product with reference to their design ideas and criteria (see make section above). 	 Understand and use lever and linkage mechanisms. Distinguish between fixed and loose pivots. Demonstrate a range of lever and linkage mechanisms to the children using prepared teaching aids. Demonstrate the correct and accurate use of measuring, marking out, cutting, joining, finishing skills and techniques (see make section for tools, materials and components). 	N/A

	EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4
STRUCTURES	 Start to build structures, joining components together. 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. Experience of different methods of joining card and paper. 	 To build structures, exploring how they can be made stiffer, stronger and more stable. To draw or photograph the structures they have been exploring and label with the correct vocabulary. To explore a variety of freestanding structures using construction kits to make a mock up. Measure, mark out, cut, shape, join and finish with a range of tools and new and reclaimed materials (see make section) Discuss the suitability of materials for their products according to their characteristics. To fold paper or card in different ways to make freestanding structures, using masking tape where necessary to make joins. 	 Children build structures, exploring how they can be made stronger, stiffer and more stable. To draw or photograph the structures they have been exploring and label with the correct technical vocabulary in relation to the structure, materials used and shapes To explore a variety of freestanding structures using construction kits to make their product. Measure, mark out, cut, shape, join and finish with a range of tools and new and reclaimed materials (see make section) 	 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. To investigate different shell structures. To take a small package apart identifying and discussing parts of a net Judge the suitability of the shell structures for their intended users and purposes. Discuss graphics including colours/impact of style/logo/size of font To use kit parts to construct nets. Practise making nets out of card, joining flat faces with masking tape to create 3-D shapes. To score, cut out and assemble using pre-drawn nets. To practise constructing a simple box. Show how a window could be cut out and acetate sheet added. Demonstrate how to use different ways of stiffening and strengthening their shell structures e.g. folding and shaping, corrugating, ribbing, laminating. Practise using computeraided design (CAD) software to design the net, text and graphics for their products according to purposes. 	 Develop and use knowledge of how to construct strong, stiff structures. Judge the suitability of the structures for their intended users and purposes. Discuss graphics including colours/impact of style/logo/size of font. Practise using computeraided design (CAD) software to design the text and graphics for their products according to purposes.

	EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4
TEXTILES	 Explored and used different fabrics. Cut and joined fabrics with simple techniques – glue, tie and paper clip. Thought about the user and purpose of products. 	 Make drawings of existing products, stating the user and purpose. Identify and label, if appropriate, the fabrics, fastenings and techniques used. Understand how to join fabrics using different techniques e.g. glue, stapling, paper clips, tie or safety pin. Explore different finishing techniques e.g. using painting, fabric crayons, sequins, sewing buttons and ribbons. 	 Make drawings of existing products, stating the user and purpose. Identify and label, if appropriate, the fabrics, fastenings and techniques used. Understand how simple 3D textile products are made, using a template to create two identical shapes. Investigate fabrics to determine which is best for the purpose of the product they are creating. To use a template or simple paper pattern. To join fabrics using different techniques e.g. running stitch or over stitch To use joining techniques e.g. running stitch including threading own needle, stapling, lacing and gluing. Talk about the advantages and disadvantages of each technique. To use finishing techniques e.g. sewing buttons, 3-D fabric paint, gluing sequins, printing. 		 Know how to strengthen, stiffen and reinforce existing fabrics. Understand how to securely join two pieces of fabric together. Understand the need for patterns and seam allowances. To investigate a range of textile products that have a selection of stitches, joins, fabrics, finishing techniques, fastenings and purposes, linked to the product they will design, make and evaluate. Think about products from the past and what changes have been made in textile production and products e.g. the invention of zips and Velcro. To use a range of stitching techniques – running, backstitch, bastling stitch and invisible stitch. Create a paper pattern using 2-D shapes. Provide a range of fabrics – children to consider whether fabrics are suitable for the chosen purpose and user. Use finishing techniques e.g. appliqué, embroidery, fabric pens/paints, printing.

	EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4
ELECTRICAL SYSTEMS	N/A	N/A	N/A	N/A	 Understand and use electrical systems in products, such as series circuits incorporating switches, bulbs and buzzers. Discuss, investigate and, where practical, disassemble different examples of relevant battery-powered products. Make manually controlled, simple series circuits with batteries and different types of switches, bulbs and buzzers. Know which components in the circuit are input devices and which are output devices. Demonstrate how to find a fault in a simple circuit and correct it. Use a simple computer control program to physically control output devices. Make a variety of switches by using simple classroom materials e.g. card, corrugated plastic, aluminium foil, paper fasteners and paper clips. Encourage children to make switches that operate in different ways.

	EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4
COOKING AND NUTRITION	 Children know the importance for good health of a healthy diet. Begin to develop food vocabulary using taste, smell, texture and feel. Stir, spread, sieve, roll and shape a range of food and ingredients. Begin to work safely and hygienically. Measure and weigh food items, nonstatutory measures. Experience of common fruit and vegetables, undertaking sensory activities i.e. appearance taste and smell. Experience of cutting soft fruit and vegetables using appropriate utensils. 	 With support, follow a simple plan or recipe. Begin to select from a range of hand tools and equipment, such as scissors, safe knives and juicer, safely and hygienically. Prepare simple dishes safely and hygienically. Use simple utensils and provide opportunities for the children to practise skills such as washing, grating, mixing peeling, slicing, squeezing and measuring Handle, smell and taste fruit and vegetables Understand where a range of fruit and vegetables come from. Use basic principles of a healthy and varied diet to prepare dishes, including how fruit and vegetables are part of The Eatwell Guide. 	 Learn to use hand tools and kitchen equipment safely and hygienically. Use utensils and provide opportunities for the children to practise skills such as kneading, cutting, rolling, mixing, sieving, resting, washing, combining measuring, slicing, peeling and grating. With support, follow a simple plan or recipe. Understand that food ingredients should be combined according to their sensory characteristics. Food has to be farmed, grown elsewhere (e.g. home) or caught. Understand how to name and sort foods into the five groups in the Eatwell Guide and use what they know to design and prepare dishes. Everyone should eat at least five portions of fruit and vegetables every day and start to explain why. Know how to prepare simple dishes safely and hygienically. Explain where in the world different foods originate from. Handle, smell and taste different vegetables 	 Learn to use a range of tools and equipment safely, appropriately and accurately and learn to follow hygiene procedures. Use utensils and provide opportunities for the children to practise skills such as spreading, cutting, mixing, grating, peeling, sieving combining kneading, measuring, washing, baking and proving. Measure and weigh ingredients to the nearest gram and millilitre. Start to independently follow a recipe. Food is grown, reared and caught. Understand seasonality. Know how to prepare and cook a variety of predominantly savoury dishes. Food and drink provide energy. Carry out sensory evaluations on the contents of the food Understand how to name and sort foods into the five groups in the Eatwell Guide and use what they know to design and prepare dishes. Everyone should eat at least five portions of fruit and vegetables every day and start to explain why. Start to understand user's allergies/preferences 	 With support, use a heat source to cook ingredients showing awareness of the need to control the temperature of the hob and/or oven. Use utensils and provide opportunities for the children to skills such as mixing, rubbing, baking, rolling, shaping, combining, sprinkling, cutting, washing, blending, seasoning, grating Measure and weigh ingredients to the nearest gram and millilitre. Start to independently follow a recipe. Know that to be active and healthy, food and drink are needed to provide energy. Explain that a healthy diet is made up of a variety and balance of different food and drink, as represented in the Eatwell Guide and be able to apply these principles when planning and cooking dishes. Know how to prepare and cook a variety of predominantly savoury dishes. Carry out sensory evaluations on the contents of the food

Equipment	<mark>Equipment</mark>	Equipment	Equipment	Equipment
Chopping Boards Knives Spoons Bowls Shape Cutters Sieves	Chopping Boards Knives Peelers Graters Skewer Spoons Jugs Plates Bowls	Bowls Rolling pins Knives Chopping Boards Peelers Graters Spoons Plates Sieves Frying pan (teacher led)	Chopping Boards Knives Peelers Graters Spoons Plates Baking Trays Sieves	Chopping Boards Rolling Pins Knives Peelers Graters Spoons Plates Baking Trays Blender Shape Cutters