Design and Technology – Skills Progression

	FS2	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Mechanisms	Explore simple movements (**pull, push, slide, turn**) through play.	**Siders and Levers** ✓ Explore and use **sliders and levers**; ✓ Explore and understand that different mechanisms produce **different types of movement;** ✓ Know and use **technical vocabulary**.	**Wheels and Axles** ✓ Explore and use **wheels, axles and axle holders**; ✓ Distinguish between **fixed and freely moving axles**; ✓ Know and use **technical vocabulary**.		**Levers and Linkages** ✓ Understand and use **lever and linkage mechanisms**; ✓ Distinguish between **fixed and loose pivots**; ✓ Know and use **technical vocabulary**.	**Pulleys or Gears** ✓ Understand that **mechanical and electrical systems** have an **input, process and output**; ✓ understand how **gears & pulleys** can be used to **speed up, slow down or change the direction of movement**; ✓ Know and use **technical vocabulary**.	
Product	N/A	**Moving Image**	**Push/Pull Recycling Lorry**		**Easter Greetings Cards**	**Locomotive model**	
Explore	Explore materials and existing products through play; talk about what they see, feel, and taste.	✓ Explore a range of existing books with sliders and levers; Identify simple features; ✓ Discuss who products are for.	✓ Explore and evaluate a range of products with wheels and axles to understand how they work; Identify simple features; ✓ Discuss and understand purpose & users of the products.		✓ Investigate and analyse books and, where available, other products with lever and linkage mechanisms; ✓ Discuss and understand <u>purpose & users</u> of the products.	✓ Test products with intended user and critically evaluate the design, functionality and fitness for purpose; ✓ Investigate famous manufacturing and engineering companies relevant to the project.	
Design	Begin to generate simple ideas; choose materials based on preference.	✓ Generate ideas **based on simple design criteria** and their own experiences – **explaining what they could make**; ✓ Develop and communicate their ideas through **drawings and mock-ups**.	✓ Generate ideas and **simple design criteria through talking** and using own experiences; ✓ Develop and communicate ideas through **drawings and mock-ups**.		✓ Generate realistic ideas and **their own design criteria through discussion**, focusing on the needs of the user; ✓ Use **annotated sketches** and **prototypes** to develop, model and communicate ideas.	✓ Generate ideas by **carrying out research using surveys, interviews, questionnaires and web-based resources**; ✓ **Develop** a **simple design specification** to guide their thinking; ✓ Develop & communicate ideas through **discussion, annotated drawings, and drawings from different views**; ✓ Produce **detailed lists of tools, equipment and materials**.	
Make	Use simple tools (scissors, rollers, cutters); Join materials.	✓ Plan by **suggesting what to do next**; ✓ Select and use tools, **explaining their choices to cut, shape and join paper/card**; ✓ Use **simple finishing techniques** for the product they are creating.	✓ Use a range of tools and equipment to perform practical tasks such as **cutting and joining**; ✓ Select from and use a range of materials such as paper, card, plastic and wood **according to their characteristics**.		✓ **Order the main stages of making**; ✓ Select from and use appropriate tools **<u>with some accuracy</u> to cut, shape and join paper and card**; ✓ Select from and use **finishing techniques** suitable for the product they are creating.	✓ **Formulate step-by-step plans** (if appropriate, allocate tasks within a team); ✓ Select from and use a range of tools and equipment to make products that that are **accurately assembled and well finished**; ✓ Work within the **constraints of time, resources and cost**.	
Evaluate	Talk about what they made; say what they like/dislike.	✓ Evaluate their product by discussing how well it works in relation to the **purpose and the user**, as well as whether it meets **design criteria**.	✓ Evaluate **<u>their ideas throughout</u>** and their products against **original criteria**.		✓ Evaluate their own products and ideas **against criteria and user needs**, **<u>as they design and make</u>**.	✓ Compare the final product to the **original design specification**; ✓ Consider the **views of others** to improve their work;	

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Structures	Experience of **building walls, towers and frameworks**; **using of basic tools** e.g., scissors or hole punches; Experience of **different methods of joining card and paper.**	**Free Structures** ✓ Know how to make freestanding **structures stronger, stiffer and more stable;** ✓ Know and use **technical vocabulary.**		**Shell Structures** ✓ **Develop and use knowledge** of how to construct **strong, stiff shell structures;** ✓ Develop and use knowledge of **nets of cubes and cuboids** and, **where appropriate, more complex 3D shapes;** ✓ Know and use **technical vocabulary.**			**Frame Structures** ✓ Understand **how to strengthen, stiffen and reinforce 3-D frameworks**; ✓ Know and use **technical vocabulary.**
Product	N/A	**Enclosures for Zoo/Farm Animals; Bridge for Billy Goats Gruff; Furniture for the Three Bears**		**Sweets Box (act of kindness gift)**			**Festival Eco-Shelter (Tent)**
Explore	Explore materials and existing products through play; talk about what they see, and feel.	✓ Explore a range of existing freestanding structures in the school and local environment e.g., everyday products and buildings; ✓ Identify simple features; ✓ Discuss who products are for.		✓ Investigate and evaluate a range of existing shell structures including the materials, components and techniques that have been used. ✓ Develop ideas through analysing existing products;			✓ Investigate and evaluate a range of existing frame structures; ✓ Carry out research into user needs and existing products using surveys, interviews, questionnaires and web-based resources; ✓ Research key events and individuals relevant to frame structures.
Design	Begin to generate simple ideas; choose materials based on preference.	✓ Generate ideas **based on simple design criteria** and their own experiences – **explaining what they could make**; ✓ Develop and communicate their ideas through **drawings and mock-ups**.		✓ **Generate ideas and design criteria collaboratively** through discussion, focusing on the **needs of the user and purpose of the product**; ✓ **Explain** their choice of materials according to **functional properties** and **aesthetic qualities**; ✓ Use **annotated sketches and prototypes** to model and communicate ideas.			✓ **Develop a simple design specification** to guide their ideas and products, taking account of **constraints including time, resources and cost**; ✓ Generate, develop and model ideas through **discussion, prototypes and annotated sketches;** ✓ Formulate a clear plan, **including a step-by-step list** of what needs to be done and **list of resources** to be used.
Make	Use simple tools (scissors, rollers, cutters); Join materials.	✓ Plan by **suggesting what to do next**; ✓ Select and use tools, **explaining their choices** to **cut, shape and join paper/card**; ✓ Select materials and construction kits to build their structures; ✓ Use **simple finishing techniques** for the structure they are creating.		✓ **Order** the main stages of making; ✓ Select and use appropriate tools to **measure, mark out, cut, score, shape and assemble** with some accuracy; ✓ Use **finishing techniques** suitable for the product they are creating.			✓ Competently select and use appropriate tools to **measure, mark out, cut, shape and join materials** to make frameworks; ✓ Use **finishing and decorative techniques** suitable for the structure they are designing and making.
Evaluate	Talk about what they made; say what they like/dislike.	✓ Evaluate their structure by **discussing** how well it works in relation to the **purpose and the user**, as well as whether it **meets design criteria**.		✓ **Test and evaluate** their own products against design criteria and the intended user and purpose.			✓ **Critically evaluate** their products against their design specification, intended user and purpose, **identifying strengths and areas for development**, and **carrying out appropriate tests**.

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	FS2	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Textiles	**Explored and used different fabrics**; **Cut and joined** fabrics with simple techniques.		**Templates and Joining Techniques** ✓ Understand how **simple 3-D textile products** are made, **using a template to create two identical shapes;** ✓ **How to join fabrics using different techniques** e.g. running stitch, glue, over stitch, stapling; ✓ **Explore different finishing techniques** e.g. using painting, fabric crayons, stitching, sequins, buttons and ribbons; ✓ Know and use **technical vocabulary.**	**2D Shape to 3D Product** ✓ 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**; ✓ Know and use **technical vocabulary.**		**Using Computer Aided Design (CAD)** ✓ **To know** a **3-D textile product** can be made from a combination of accurately made pattern pieces, fabric shapes and different fabrics; ✓ To **know fabrics can be strengthened, stiffened and reinforced** where appropriate; ✓ Know and use **technical vocabulary.**	
Product	N/A		**Glove/Finger Puppet; Clothes for teddy; Small Pillow (tooth fairy pillow)**	**Small Coin Pouch/Purse**		**Reusable Shopping Tote Bag**	
Explore	Explore materials and existing products through play; talk about what they see and feel.		✓ Explore and evaluate a range of existing textile products relevant to the project.	✓ Investigate a range of 3-D textile products relevant to the project; ✓ Understand how a key event/ individual has influenced the development of the chosen product and/or fabric.		✓ Investigate and analyse textile products linked to their final product; ✓ Test products with intended user, where safe and practical, and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose.	
Design	Begin to generate simple ideas; choose materials based on preference.		✓ Design a functional and appealing **product for a chosen user** and **purpose based on simple design criteria**; ✓ Generate, develop, model and communicate their ideas as appropriate through **talking, drawing, templates and mock-ups**; ✓ Select from and use textiles according to their **characteristics**.	✓ Generate realistic ideas through **discussion and design criteria** for an appealing, functional product **fit for purpose and specific user/s**; ✓ Produce **annotated sketches**, **prototypes**, final product sketches and pattern pieces.		✓ Generate innovative ideas through **research including surveys, interviews and questionnaires**; ✓ Develop, model and communicate ideas through talking, drawing, templates, mock-ups and **prototypes including using computer-aided design**; ✓ Design **purposeful, functional, appealing products for the intended user** that are fit for purpose based on a **simple design specification**.	
Make	Use simple tools (scissors, rollers, cutters); Join materials.		✓ Select and use a range of tools and equipment to perform practical tasks such as **marking out, cutting, joining and finishing**;	✓ **Plan** the main **stages of making**; ✓ Select and **use a range of appropriate tools** with some accuracy e.g. cutting, joining and finishing; ✓ Select **fabrics and fastenings** according to their **functional characteristics** e.g., strength, and aesthetic qualities e.g., pattern.		✓ **Formulate step-by-step plans** (if appropriate, allocate tasks within a team); ✓ Select from and use a range of tools and equipment to make products that that are **accurately assembled and well finished**; ✓ Work within the **constraints of time, resources and cost**.	
Evaluate	Talk about what they made; say what they like/dislike.		✓ Evaluate their ideas throughout and their products **against original criteria**.	✓ Test their product **against the original design criteria** and with the **intended user**; ✓ Take into account **others' views**.		✓ **Compare** the final product to the **original design specification;** ✓ Consider the **views of others** to improve their work.	

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	FS2	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Food	**Sensory experience of common fruit and vegetables**, i.e. appearance taste and smell; Experience of **cutting using appropriate utensils**.	**Preparing Fruit and Vegetables** ✓ Understand **where** a range of **fruit and vegetables come from** e.g. farmed or home grown; ✓ Understand and use **basic principles of a healthy and varied diet** to prepare dishes; ✓ Know and use **technical and sensory vocabulary.**		**Healthy & Varied Diet** ✓ Know how to use appropriate equipment and utensils to **prepare and combine food**; ✓ Know about a range of **fresh and processed ingredients** appropriate for their product, and **whether they are grown, reared or caught;** ✓ Know and use **technical and sensory vocabulary.**		**Celebrating Culture and Seasonality** ✓ Know **how to use utensils and equipment <u>including heat sources</u>** to prepare and cook food; ✓ Understand about **seasonality** in relation to food products and the **source of different food products**.	
Product	N/A	**Fruit Salad Pots**	**Fruit and Vegetable Kebabs**	**Vegetarian Wraps**	**Subs [Sandwiches]**	**Pizza**	**Savoury Scones**
		✓ **using soft fruit only**	✓ **soft and firmer fruit/vegetables;** ✓ **claw grip and bridge safety hold when cutting;** ✓ **safely using skewers**	✓ **focus on balanced vegetarian diet,** ✓ **grating food,** ✓ **recording data in tables**	✓ **recording data in bar graph** ✓ **precision horizontal and diagonal slicing** ✓ **enrichment opportunities to work with real business**	✓ **use basic star diagrams (4 points)** ✓ **learn about biological raising agent (yeast) and kneading** ✓ **flat surface bake**	✓ **use advanced star diagram (8 points)** ✓ **using chemical raising agent (baking powder) and rubbing-in method** ✓ **uniform batch baking**
Explore	Explore materials, ingredients, and existing products through play; talk about what they see, feel, and taste.	✓ Taste and evaluate a range of fruit and vegetables to determine the intended user's preferences; ✓ Generate initial ideas and design criteria through investigating a variety of fruit and vegetables		✓ Carry out sensory evaluations of a variety of ingredients and products - record the evaluations using e.g. tables and simple graphs;		✓ Carry out sensory evaluations of a range of relevant products and ingredients - record the evaluations using e.g., tables/graphs/charts such as star diagrams. ✓ Understand how key chefs have influenced eating habits to promote varied and healthy diets.	
Design	Begin to generate simple ideas; choose materials based on preference.	✓ Design appealing products for a **particular user based on simple design criteria**; ✓ Communicate these ideas through **talk and drawings**.		✓ 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; ✓ Use **annotated sketches and appropriate information** and communication technology, such as web-based recipes, to develop and communicate ideas.		✓ Generate innovative ideas through **research and discussion** with peers and adults to **develop a design brief and criteria** for a design specification; ✓ **Explore a range of initial ideas**, and make design decisions to develop a final product linked to user and purpose; ✓ Use **words, annotated sketches and information** and communication technology as appropriate to develop and communicate ideas.	
Make	Use simple tools (scissors, rollers, cutters); Basic food prep (mixing, spreading).	✓ Use simple utensils and equipment to e.g. **peel, cut, slice, squeeze, grate and chop safely**; ✓ Select from a range of fruit and vegetables according to their **characteristics** e.g. colour, texture and taste to create a chosen product.		✓ **Plan** the main stages of a **recipe**, **listing ingredients, utensils and equipment**; ✓ Select and use appropriate utensils and equipment to **prepare and combine ingredients**; ✓ **Select from a range of ingredients** to make appropriate food products, thinking about sensory characteristics.		✓ **Write a step-by-step recipe**, including a list of ingredients, equipment and utensils; ✓ Select and use appropriate utensils and equipment accurately to **measure and combine appropriate ingredients**; ✓ **Make, decorate and present the food product appropriately** for the intended user and purpose.	
Evaluate	Talk about what they made; say what they like/dislike.	✓ Evaluate ideas and finished products **against design criteria**, including intended user and purpose.		✓ Evaluate the ongoing work and the final product with **reference to the design criteria** and the **views of others**.		✓ Evaluate the final product with reference back to the **design brief and design specification**, taking into account the **views of others** when identifying improvements.	

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	FS2	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Electrical Systems	Explore simple movements (**pull, push, slide, turn**) through play.				**Simple Switches and Circuits** ✓ Understand and use electrical systems in their products, such as series circuits incorporating switches, bulbs and buzzers; ✓ Apply their understanding of computing to program and control their products; ✓ Know and use technical vocabulary relevant to the project.		**More Complex Switches and Circuits** ✓ Understand and use electrical systems in their products; ✓ Apply their understanding of computing to program, monitor and control their products; ✓ Know and use technical vocabulary relevant to the project.
Product	N/A				**Torch**		**Electrical Board Game**
Explore	Explore materials and existing products through play; talk about what they see, feel, and taste.				✓ Investigate and analyse a range of existing battery-powered products;		✓ Investigate famous inventors who developed ground-breaking electrical systems and components.
Design	Begin to generate simple ideas; choose materials based on preference.				✓ **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; ✓ Generate, develop, model and communicate realistic ideas through **discussion and, as appropriate, annotated sketches, cross-sectional and exploded diagrams**.		✓ 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;** ✓ Generate and develop innovative ideas and share and clarify these through discussion; ✓ Communicate ideas through **annotated sketches, pictorial representations of electrical circuits or circuit diagrams**.
Make	Use simple tools (scissors, rollers, cutters); Join materials.				✓ **Order** the main stages of making; ✓ Select from and use tools and equipment to **cut, shape, join and finish with some accuracy**; ✓ Select from and use materials and components, including construction materials and electrical components according to their **functional properties and aesthetic qualities**.		✓ Formulate a **step-by-step plan** to guide making, **listing tools, equipment, materials and components**; ✓ **Competently select** and **accurately assemble** materials, and securely connect electrical components to produce a reliable, functional product; ✓ **Create and modify a computer control program** to enable an electrical product to work automatically in response to changes in the environment.
Evaluate	Talk about what they made; say what they like/dislike.				✓ Evaluate their ideas and products **against their own design criteria** and **identify the strengths** and **areas for improvement** in their work.		✓ **Continually evaluate and modify** the working features of the product to match the initial design specification; ✓ **Test the system** to demonstrate its effectiveness for the intended user and purpose;