

Design Technology: progression document



| Nursery | Reception | Early Learning Goal: Expressive Arts and Design |
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| <p>Design Use their imagination as they consider what they can do with different materials. Explore different materials freely to develop their ideas about how to use them and what to make</p> <p>Make Use block play to begin to build and design. Manipulate and play with different materials. Use various construction materials, e.g. joining pieces, stacking vertically and horizontally, balancing, making enclosures and creating spaces. Begin to use scissors and Sellotape cutters accurately. Use basic fixings, e.g. PVA glue, Pritt stick, masking tape, Sellotape (but may still get tangled). Use scissors accurately. Begin to use cutlery accurately. With supervision, use staplers and hole punches safely. Use masking tape, Sellotape (and cutter), elastic bands, Pritt stick and PVA glue accurately. Begin to use treasury tags. With supervision, begin to use an age-appropriate hammer and screws (goggles and gloves).</p> <p>Evaluate Explore different materials, using all of their senses to investigate them. Join different materials, beginning to explain choice linked to shape and texture / properties.</p> <p>Vocabulary make, hard, soft, small, big, build, join, plastic, paper, cardboard, scissors, tape, glue, together, safe, stapler, hole punch, treasury tag, tools, goggles, safely</p> | <p>Design Develop their own ideas through experimentation with a diverse range of materials.</p> <p>Make Join different materials explaining why they have chosen a specific fixing. Purposefully choose construction materials for a specific job. Accurately use a range of small tools - scissors, cutlery, stapler, hole punch, trowel. Know how to use an age-appropriate hammer, screws, nails, hand drills, hand vice and a saw safely (goggles and gloves). Use a range of fixings explaining choices – staples / stapler, hole punch, treasury tags, split pins, different glues, Sellotape, masking tape.</p> <p>Evaluate Increasingly choose more appropriate materials for the job, e.g. cotton reels / lids for wheels, wool / thread for hair.</p> <p>Vocabulary material, wood, foil, fabric, fixing, trowel, drill, vice, saw, split pins, safety equipment</p> | <p>Children at the expected level of development will:</p> <ul style="list-style-type: none"> - 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. |
| Year 1 | Year 2 | Year 3 |
| Knowledge and Skills | Knowledge and Skills | Knowledge and Skills |
| <p>Design – Draw on their own experience to help generate ideas. Begin to understand the development of existing products: What they are for, how they work, materials used. Start to suggest ideas and explain what they are going to do. Begin to develop their ideas through talk and drawings. <i>Design, ideas, products, materials, plan</i></p> <p>Make Begin to make their design using appropriate techniques. Begin to build structures. Explore and use mechanisms (for example, levers, sliders) in their products. With help measure, mark out, cut and shape a range of materials. Explore using tools e.g. scissors and a hole punch safely. Begin to assemble, join and combine materials. Begin to use simple finishing techniques to improve the appearance of their product. <i>Techniques, structures, mechanisms, sliders, levers, measure, appearance</i></p> | <p>Design: Start to generate ideas by drawing on their own and other people's experiences. Begin to develop their design ideas through understanding the development of existing products: What they are for, how they work, materials used. Identify a purpose for their design. Develop their ideas through talk and drawings and label parts. Make templates of their ideas in card and paper. Design, existing products, materials, purpose, labels, template</p> <p>Make: Begin to select tools and materials; use correct vocabulary to name and describe them. Explore and use mechanisms (for example, wheels and axles), in their products. Build structures, exploring how they can be made stronger, stiffer and more stable. With help measure, cut and score with some accuracy. Learn to use hand tools safely and appropriately. Join and combine materials in order to make a product. Demonstrate how to cut, shape and join fabric to make a simple product. Use basic sewing techniques. Start to choose and use appropriate finishing techniques based on own ideas</p> | <p>Design: Generate ideas for an item, considering its purpose and the user. Look at similar products to see how they have been made. Start to order the main stages of making a product. Identify a purpose and establish criteria for a successful product. Know to make drawings with labels when designing. When planning, explain their choice of materials and tools. <i>purpose</i></p> <p>Make Select a wider range of tools and techniques for making their product i.e. construction materials and kits, textiles, food ingredients, Explain their choice of tools and equipment in relation to the skills and techniques they will be using. Start to understand mechanical systems. Measure, mark out, cut, score and assemble components with more accuracy. Start to work safely and accurately with a range of simple tools. Start to measure, tape or pin, cut and join fabric with some accuracy <i>Appropriate tools, reinforce, construct</i></p> |

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| <p>Evaluate Start to evaluate their product by discussing how well it works in relation to the purpose. When looking at existing products explain what they like and dislike about products and why. <i>Evaluate, improve</i></p> <p>Technical Knowledge</p> <p>Structures and Mechanisms - Designing a moving model (paper toys and optical illusion spinner) Begin to understand ways to make models stronger Begin to understand ways to make a model move, using simple mechanisms like levers and sliders <i>Stronger, slot, card, masking tape, join, pull, push, up, down, straight, curve, forwards, backwards</i></p> <p>Cooking and nutrition – Teddy Bears Picnic (Plan Bee) Begin to understand that all food comes from plants or animals. Know how to prepare simple dishes safely and hygienically, without using a heat source. Know how to use techniques such as cutting and peeling. <i>hygiene, knife, cut, healthy, unhealthy</i></p> <p>Textiles – Sewing Bookmarks Understand how to join fabrics using different techniques e.g. running stitch, over stitch glue, stapling. Explore different finishing techniques. <i>fabrics, template, mark out, decorate, finish</i></p> | <p><i>wheels, axles, accuracy</i></p> <p>Evaluate Evaluate their work against their design criteria. Talk about their ideas, saying what they like and dislike about them. Think of ways to improve their product if they made it again. Look at a range of existing products explain what they like and dislike about products and why. <i>design criteria, existing products</i></p> <p>Technical knowledge –</p> <p>Structures and mechanisms – Sliding pictures of moving planes Begin to understand how wheels and axles work. Begin to measure and cut accurately. Begin to understand ways to make models stronger Begin to understand ways to make a model move, using simple mechanisms like levers and sliders <i>vehicle, axle holder, chassis, body, cab assembling, shaping, finishing, fixed, free, moving</i></p> <p>Cooking and Nutrition – Making pizzas Understand that all food comes from plants or animals. Know that food has to be farmed, grown elsewhere (e.g. home) or caught. Know that everyone should eat at least five portions of fruit and vegetables every day. Demonstrate how to prepare simple dishes safely and hygienically, without using a heat source. Demonstrate how to use techniques such as cutting, peeling and grating <i>Nutrition, peeling, grating, safety</i></p> <p>Textiles - Puppets Understand how simple 3-D textile products are made, using a template to create two identical shapes. Understand how to join fabrics using different techniques e.g. running stitch, glue, over stitch, stapling. Explore different finishing techniques <i>joining and finishing techniques, tools, fabrics and components, pattern pieces</i></p> | <p>Evaluate Start to evaluate their product against original design criteria e.g. how well it meets its intended purpose. Start to evaluate their products as they are developed, identifying strengths and possible changes they might make. When evaluating their product, consider the views of others to improve them. <i>intended purpose, identify strengths, improvements</i></p> <p>Technical Knowledge</p> <p>Structures and Mechanisms - Photo frames 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). Apply their understanding of computing to program, monitor and control their products.</p> <p>Cooking and Nutrition – Pasta Salad Understand how to prepare and cook a variety of predominantly savoury dishes safely and hygienically. Begin to understand how to use a range of techniques such as peeling, chopping, slicing, grating, mixing. Start to understand that a healthy diet is made up from a variety and balance of different food and drink. Begin to know that to be active and healthy, food and drink are needed to provide energy for the body. <i>healthy diet, energy, chopping, slicing, mixing, utensil</i></p> <p>Textiles - Sewing Seasonal Stockings 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. <i>names of fabrics, fastening, compartment, zip, button, stitch, seam, seam allowance</i></p> |
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| Year 4 | Year 5 | Year 6 |
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| Knowledge and Skills | Knowledge and Skills | Knowledge and Skills |
| <p>Design: Generate ideas, considering the purposes, the user and its appearance. Learn about inventors, designers, engineers, chefs and manufacturers who have developed products in the area they are designing. Make labelled drawings from different views showing specific features. Develop a clear idea of what has to be done, planning how to use materials, equipment and processes. Explain their choice of materials and tools. <i>specific features, equipment, processes</i></p> <p>Make Select a wider range of tools and techniques for making their product safely. Know how to measure, mark out, cut and shape a range of materials, using appropriate tools, equipment and techniques. Start to join and combine materials and components accurately. Understand how electrical circuits and components can be used to create functional products. Understand how to reinforce and strengthen a 3D framework. Begin to use finishing techniques to strengthen and improve the appearance of their product using a range of equipment including ICT. <i>Appropriate tools, electrical circuits, functional, batteries, wires, bulb</i></p> <p>Evaluate Evaluate their products against the original design criteria, Start to evaluate their work both during and at the end. Begin to evaluate it personally and seek evaluation from others. Begin to evaluate the key designs of individuals in design and technology who have helped shape the world.</p> <p>Technical Knowledge</p> <p>Structures and Mechanisms – Light up signs Understand and use lever and linkage mechanisms. Distinguish between fixed and loose pivots. Develop and use knowledge of how to construct strong, stiff 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.</p> <p>Electrical systems – Light up signs 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.</p> <p>Cooking and nutrition – Seasonal Cooking Understand how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source. Know how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading. Know that a healthy diet is made up from a variety and balance of different food and drink. Know that to be active and healthy, food and drink are needed to provide energy for the body. <i>varied diet, spreading, heat source,</i></p> | <p>Design: Start to generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams. Begin to use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose. Draw up a specification for their design- possible links with maths and science. Use results of investigations, information sources, including ICT when developing design ideas. Plan the order of their work, choosing appropriate materials, tools and techniques. <i>Annotated sketch, cross section, exploded diagrams, innovative, function, specification</i></p> <p>Make Select appropriate materials, tools and techniques e.g. cutting, sawing, shaping, glueing, 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. Understand how mechanical systems such as cams or pulleys or gears create movement. Measure and mark out more accurately. Use tools and equipment safely and accurately, cut and join with accuracy to ensure a good-quality finish to the product. Use finishing techniques to strengthen, reinforce and improve the appearance of their product using a range of equipment including ICT. <i>Cutting, sawing, glueing, cams</i></p> <p>Evaluate Evaluate their product against the original design specification and by carrying out tests, whether their design had to change, what they like, what they found difficult, what they could improve and advice they would give to other children completing the same project. Evaluate their work both during and at the end. Evaluate it personally and seek evaluation from others. Record their evaluations using drawings with labels. Evaluate the key designs of individuals in design and technology who have helped shape the world. <i>design specification, innovative designs</i></p> <p>Technical Knowledge</p> <p>Structures and Mechanisms – Cam Toys Understanding what cams are, how they are used and how to construct one. Know how different shaped cams produce different movements. Know how to strengthen and reinforce the corners of their cam toy frame. Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages].</p> <p>Cooking and Nutrition – Bread Rolls Begin to understand that seasons may affect the food available. Know how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source. Begin to understand about proteins, carbs and fats, the benefits of all, the need for a balanced diet and examples of foods rich in these 3 macronutrients. Start to understand how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking. <i>Seasonal vegetables, proteins, carbohydrates, fats, kneading, baking, topping.</i></p> | <p>Design: Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces. Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose. Draw up a specification for their design- link with maths and science. Plan the order of their work, choosing appropriate materials, tools and techniques Explain their choice of materials and tools in detail and suggest alternatives. <i>functionality, aesthetics</i></p> <p>Make Confidently select appropriate tools, materials, components and techniques and use them and tools safely and accurately. Assemble components to make working models. Aim to make and to achieve a quality product. With confidence pin, sew and stitch materials together to create a product. Demonstrate when make modifications as they go along. Know how more complex electrical circuits and components can be used to create functional products and how to program a computer to control their products. Use finishing techniques to strengthen and improve the appearance of their product using a range of equipment including ICT. <i>cross stitch, blanket stitch, running stitch, back stitch, applique, reinforcement, stability, fabric scissors</i></p> <p>Evaluate Evaluate their products, identifying strengths and areas for development, and carrying out appropriate tests. Evaluate against their original criteria and suggest ways that their product could be improved. Evaluate their work both during and at the end. Evaluate different joining methods thinking about strength, functionality and aesthetics Record their evaluations using detailed drawings with labels. Evaluate the key designs of individuals in design and technology who have helped shape the world. <i>Design criteria, evaluate according to: strength, durability, function, aesthetic quality, appropriate tests, key designers</i></p> <p>Technical Knowledge</p> <p>Structures and Mechanisms – Bridges Understand how to strengthen, stiffen and reinforce 3-D frameworks. Know and use technical vocabulary relevant to the project. <i>Frame structure, stiffen, strengthen, reinforce, triangulation, stability, temporary, permanent</i></p> <p>Cooking and Nutrition – Biscuits Understand that seasons may affect the food available. Understand how food is processed into ingredients that can be eaten or used in cooking. Know how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source. Use baking and cooking techniques including e.g. creaming and rubbing in methods for baking, peeling and preparation or vegetables, rolling cutting out and baking of shaped individual items such as carrot/potato scones, biscuits etc. Begin to understand how to prepare meals for people with special diets. <i>Seasonality, creaming, rubbing technique, baking sheet, taste, texture, ingredients</i></p> |

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| <p><u>Textiles – Valuable Holders</u></p> <p>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.</p> | <p><u>Textiles – Beach Bag</u></p> <p>Produce a 3-D textile product from a combination of accurately made pattern pieces, fabric shapes and different fabrics. Understand how fabrics can be strengthened, stiffened and reinforced where appropriate. Know and use technical vocabulary relevant to the project. wadding, right side, wrong side, hem, name of textiles and fastenings used, pins, needles, thread, pinking shears</p> | <p><u>Textiles – Sewing a Phone Case</u></p> <p>Produce a 3-D textile product from a combination of accurately made pattern pieces, fabric shapes and different fabrics. Understand how fabrics can be strengthened, stiffened and reinforced where appropriate. Know and use technical vocabulary relevant to the project.</p> |
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