

Harting Primary School

Design Technology Skills Progression

Taking Inspiration	Explore objects and designs to identify likes and dislikes of the designs. Suggest improvements to existing designs. Explore how products have been created.		Identify some of the great designers such as Brunel, Mackintosh, Philip Treacy, Marcel Breuer in all of the areas of study including pioneers in horticultural techniques to generate ideas for designs. Improve upon existing designs, giving reasons for choices. Disassemble products to understand how they work.		Combine elements of design from a range of inspirational designers throughout history, giving reasons for choices. Create innovative designs that improve upon existing products. Evaluate the design of products so as to suggest improvements to the user experience.	
Developing, planning and communicating ideas	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Design products that have a clear purpose and an intended user. Follow verbal instructions. Explain what they are making and which materials they are using. Select pictures to help develop ideas. Name the tools they are using. Describe what they need to do next. Select materials from a limited range that will meet the design criteria. Model ideas with kits, reclaimed materials. Discuss their work as it progresses.	Select and name tools needed to work the materials. Select appropriate techniques explaining: First... Next... Last... Use pictures and words to convey what they want to design and make. Describe models and drawings of ideas and intentions. Use kits/reclaimed materials to develop an idea. Use drawings to record ideas as they are developed. Add notes to drawings to help explanations. + Year 1 skills	Investigate similar products to the one to be made to give starting points for a design. Draw/sketch products to help analyse how they are made. Use software to design and represent product designs. Think ahead about the order of their work and decide upon tools and materials. Plan a sequence of actions to make a product. Record the plan by drawing (labelled sketches) or writing.	Draw/sketch products to help understand how they are made. Develop more than one design or adaptation of an initial design. Develop prototypes. Propose realistic suggestions as to how they can achieve their designs. Refine work and techniques as the work progresses, continually evaluating the product design. + Year 3 skills.	Investigate products/images to collect ideas. Use information from research to inform decisions. (may include surveys and interviews) Use computer aided designs CAD, to represent designs, where appropriate. Sketch and model alternative ideas. Record ideas using annotated diagrams, such as a cross sectional diagram. Make and use prototypes.	Combine modelling and drawing to refine ideas. Plan a sequence of work using a storyboard. Use a computer to model ideas. Draw plans which can be read/followed by someone else such as exploded diagrams. Give a report using correct technical vocabulary. + Year 5 skills.
Construction Mechanics and Electronics	Explore vocabulary, build, join, construct Make vehicles with construction kits which contain free running wheels. Explore and use levers or sliders to make a moving part. With support cut strip wood/dowel using a hacksaw.	Explore vocabulary, structure, stable, rigid. Use a range of materials to create models with wheels and axels e.g. tubes, dowel and cotton reels. Attach wheels to a chassis using an axle. Explore and use winding mechanisms.	Investigate how to make structures more stable, e.g. by widening the base. Understand how to reinforce and strengthen finished products. Begin to use mechanical systems in their products e.g. gears, pulleys and levers. Understand that mechanical	Explore vocabulary, girder, rafter, strut. Create a shell or frame structure; strengthen frames with diagonal struts. Prototype frame and shell structures. Incorporate mechanical systems such as levers, linkages or pneumatic	Use a bradawl to mark hole positions. Join materials using appropriate methods. Build frameworks using a range of materials to support mechanisms. E.g. wood, corrugated card and plastic. Use a cam to make an up and down mechanism.	Explore vocabulary, member, cross brace and cantilever. Create and use prototypes. Use a hand drill to, tight and loose fit holes. Cut strip wood, dowel and square section wood accurately to 1mm. Use finishing techniques to strengthen and improve the

	<p>Begin to build structures joining components together to create a finished product.</p> <p>Diagnose faults in battery operated devices, such as low battery, water damage or battery terminal damage.</p>	<p>Join appropriately for different materials and situations e.g. glue and tape.</p> <p>Observe glue gun being used by an adult.</p> <p>Use materials to practice drilling, screwing, nailing and gluing to make and strengthen products.</p> <p>Build structures with some independence exploring how they can be made stronger, stiffer and more stable.</p>	<p>systems can create movement.</p> <p>Create series circuits and incorporate into a model, for e.g. with a bulb or buzzer</p>	<p>systems to make movement larger and more varied.</p> <p>Measure and mark square selection, strip and dowel accordingly to 1cm.</p> <p>Use a glue gun with close one to one supervision.</p> <p>Create series and parallel circuits and incorporate into a model.</p>	<p>Develop a range of practical skills to create products e.g. cutting, drilling, screwing, nailing, gluing, filling and sanding.</p> <p>Use a glue gun with close supervision.</p> <p>Control a model using an ICT control programme.</p>	<p>appearance of models, using art skills where appropriate.</p> <p>Create circuits using electronics kits that employ a number of components such as LEDs, resistors, transistors and chips.</p> <p>+ Year 5 skills</p>
Materials	<p>Fold, tear and cut paper and card.</p> <p>Roll paper to create tubes.</p> <p>Cut along lines, straight and curved.</p> <p>Use a hole punch.</p> <p>Insert paper fasteners for card linkages.</p> <p>Mark out materials to be cut using a template.</p> <p>Demonstrate a range of joining techniques such as gluing or taping.</p> <p>Use simple pop ups.</p>	<p>Demonstrate a range of joining techniques such as gluing, taping or creating hinges.</p> <p>Cut materials safely using the tools provided.</p> <p>Demonstrate a range of techniques such as tearing, cutting, folding and curling.</p> <p>Investigate strengthening sheet materials.</p> <p>Measure materials to be cut using a ruler.</p> <p>+ Year 1 skills</p>	<p>Practice cutting and shaping techniques that include cuts within the perimeter of the material such as slots.</p> <p>Cut materials accurately and safely by selecting appropriate tools.</p> <p>Accurately measure and mark out to the nearest cm.</p>	<p>Measure and mark out to the nearest mm.</p> <p>Use and explore complex pop ups.</p> <p>Practice cutting and shaping techniques that include cuts within the perimeter of the material such as slots and internal shapes.</p> <p>Create nets.</p>	<p>Cut accurately and safely to a marked line.</p> <p>Join and combine materials with temporary, fixed or moving joints.</p>	<p>Use a craft knife, cutting mat and safety ruler with one to one supervision if appropriate.</p> <p>Show an understanding of the qualities of materials to choose appropriate tools to cut and shape.</p> <p>Refine the finish with appropriate tools e.g. sanding wood.</p>
Textiles	<p>Colour fabrics using a range of techniques e.g. fabric paints, printing or dyeing.</p> <p>Join fabrics with glue.</p> <p>Decorate fabrics with buttons, beads, sequins, braids and ribbons.</p>	<p>Cut out shapes which have been created by drawing around a template onto the fabric.</p> <p>Join fabrics by using a running stitch, staples, over sewing or tape.</p> <p>+ Year 1 skills.</p>	<p>Measure materials using a tape measure.</p> <p>Join fabrics using running stitch, over sewing and back stitch.</p> <p>Use appropriate decoration techniques (glue).</p> <p>Create a simple pattern.</p>	<p>Understand the need for patterns.</p> <p>Understand seam allowance.</p> <p>Prototype a product using j cloths.</p> <p>Explore fastenings and recreate some e.g. sew on buttons and make loops.</p> <p>Use appropriate decoration techniques (appliqué or simple stitches).</p> <p>+ Year 3 skills.</p>	<p>Create 3D products using pattern pieces and seam allowance.</p> <p>Understand pattern layout.</p> <p>Join fabrics by over sewing and back stitch.</p> <p>Learn how to blanket stitch.</p> <p>Make quality product(s).</p>	<p>Pin and tack fabric pieces together.</p> <p>Decorate textiles appropriately often before joining components.</p> <p>Join fabrics by over sewing, back stitch and blanket stitch to create quality product(s).</p> <p>+ Year 5 skills.</p>

<p>Cooking and Nutrition</p>	<p>Begin to understand that all food comes from plants and animals. Develop a food vocabulary using the five senses. Sort familiar food products, for eg, fruit and vegetables. Peel and chop a range of ingredients. Measure or weigh using spoons and cups or electronic scales. Work safely and hygienically. Assemble or cook ingredients.</p>	<p>Know that food has to be farmed, grown elsewhere or caught. Cut, peel and grate a range of ingredients. Begin to name and sort foods into the five groups in The Eatwell Plate. Measure and weigh food items using standard measures, eg, litres, grams etc. Select, assemble or cook ingredients.</p>	<p>Begin to know that food is grown (such as wheat), reared (such as pigs) and caught (such as fish) in the UK, Europe and the wider world. Know that a healthy diet is made up from a variety of different food and drink as depicted in the Eatwell Plate Follow a recipe with support. Make suggestions on how this could be improved. Peel, chop, slice and grate a range of ingredients. Measure and weigh ingredients appropriately. Assemble or cook ingredients, controlling the temperature of the oven or hob if using.</p>	<p>Understand that food is grown, reared and caught in the UK, Europe and the wider world. Prepare and cook a variety of savoury dishes safely and hygienically. Follow a recipe independently and create own foods based upon techniques. Use a range of techniques such as mixing, kneading and baking. Measure ingredients using scales. Analyse the taste, texture, smell and appearance of a range of food.</p>	<p>Plan a meal / menu. Create own recipes including ingredients, methods, cooking times and temperatures. Measure accurately using different equipment. Assemble or cook ingredients controlling the temperature of the oven or hob if cooking. Understand the importance of correct storage and handling of ingredients.</p>	<p>Create and refine own recipes including ingredients, methods, cooking times and temperatures. Calculate ratios of ingredients to scale up or down from a recipe. Measure ingredients to the nearest gram and millimetre. Combine ingredients appropriately e.g. beating or rubbing. Understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed.</p>
<p>Evaluation</p>	<p>Say what they like and do not like about items they have made and attempt to say why. Talk about their designs as they develop and identify good and bad points. Talk about changes made during the making process.</p>	<p>Discuss how closely their finished product(s) meet their design criteria. + Year 1 skills.</p>	<p>Identify the strengths and weaknesses of their design ideas. Consider and explain how the finished product could be improved. Discuss how well the finished product meets the design criteria and how well it meets the needs of the user.</p>	<p>Decide which design idea to develop. + Year 3 skills.</p>	<p>Use design criteria to inform decisions about ways to proceed. Justify decisions about materials and methods of construction. Consider the views of others when evaluating their own work. Reflect on their work using design criteria stating how well the design fits the needs of the user. Identify what does and does not work in a product. Make suggestions as to how their design could be improved.</p>	

Use statements in **bold** for assessment.