

Design Technology at Thomlinson Junior School 2024 2025 Skills Knowledge

	Year 3	Year 4	Year 5	Year 6
Autumn	<p>Cooking and nutrition: Eating seasonally Design: Healthy, nutritious recipe for seasonal savoury tart - taste, smell, texture, appearance. Make: Prepare self and workspace for safe and contamination free cooking. Follow recipe instructions. Evaluate: Use design criteria to test and review dishes. Environmental impact of seasonality. Suggest improvements when making tart. Knowledge: Not all fruit/vegetables grown in UK. Meaning of: 'imported foods' (and impact on environment), 'exported foods', 'recipe', 'seasonality'. Effects of climate on food growth. Nutritional values of fruit/vegetables (inc. colour) and place in healthy diet. Rules for safe use of, cleaning and storing of knives.</p>	<p>Electrical systems: Torches Design: Consideration for target audience, design a torch with success criteria. Make: Make a torch with working electrical circuit. Cut, attach and assemble materials. Evaluate: Evaluating existing electrical products. Evaluate success of finished torch. Technical: Electrical conductors and insulators. Circuits, batteries (electricity store) and switches. Additional: Features of a torch. History and invention of electric light bulb. Swan and Edison</p>	<p>Mechanical Systems - Pop up /mechanical Christmas cards Design: Design -mix of structures/mechanisms. Name mechanisms - input/output. Ideas board for card. Make: Focus on neatness and accuracy. Make mechanisms/structures - sliders, pivots, folds to create movement. Evaluate: Other's work. Ideas for improvement. Technical: Mechanisms control movement, change. Different paper based mechanisms . Additional: What is a design brief. Hiding mechanisms.</p>	<p>Structures: Playgrounds Design: Design playground with range of structures, considering how they will be used. Make: Prior and new learning - build range of play apparatus. Using wood, measure, mark, cut and make. Materials to reinforce and decorate. Evaluate: Peer design evaluation then improve. Dynamic and ongoing evaluation - testing and adapting as it is developed. Technical: Change materials and shapes to strengthen structures. Additional: Meaning of 'footprint plan' and 'prototype'. Effect of designs on consumers.</p>
Spring	<p>Digital world: Wearable technology Design: Problem solving - useful features of Micro:bit. Computer aided design (2D shapes) to create badge. Design sketch. Design criteria. Make: Follow design requirements. Write programme to control/monitor - start LED algorithm Evaluate: Analyse/evaluate wearable tech. Peer design evaluation then improve. Technical: Meaning of: 'loop' in programming, Micro:bit, 'simulator'. Additional: What is meant by: 'Digital Revolution', 'point of sale display', 'CAD', 'focus group' (and take part in one).</p>	<p>Structures: Bridges Design: Stable, aesthetically pleasing structure. Build frame structures to support weight. Make: Range of different shaped, free standing frame structures of different sizes. Appropriate materials to build strong structures. Reinforcing corners. Textural effects. Evaluate: Other's work; describing effective and ineffective features of design and construction. Technical: What a frame structure is. Understand/know what a free-standing structure is. Additional: Know about, in addition to the structure, the aesthetics of some bridges, including decoration and mouldings. Understand the meaning of 'aesthetics' and 'product function'.</p>	<p>Electrical systems: Doodlers Design: Factors -changed on existing products. Develop design criteria - consideration for existing products and target audience Make: Altering form and function - adapting configuration. Functional series circuit with motor. Construct product. Break down construction process into steps. Evaluate: Product purpose inc. strengths and weaknesses. Function and form. Positive and negative affects from change in configuration. Effectiveness of process step breakdown. Technical: Series circuits (one direction of flow), circuit breaks, how motors work, Additional: Product analysis: strengths/weaknesses.</p>	<p>Textiles: Waistcoats Design: Design - linked to design criteria. Annotating designs - explaining decisions. Make: Template to cut fabric. Using pins correctly. Accurate marking and cutting. Strong, small, neat running stitch, close to the edge. Tying strong knots. Decorating/ Attaching features using thread. Attaching fastenings e.g. buttons. Range of decorative stitches. Sewing neat, evenly spaced stitches. Evaluate: Dynamic and ongoing evaluation . Knowledge: Design clothing with target customer in mind. Templates aid accuracy. Importance of consistently sized stitches.</p>
Summer	<p>Structures: Constructing a castle Design: Castle - key features. Draw/label <i>design</i> using 2D shapes (link to 3D shapes to be <i>used</i>), material and colours. Design/decorate using CAD. Make: Make 3D shapes from nets. Create special features. Use recycled materials. Evaluate: Evaluate own and others' work - against finished product and original design. Suggest modifications of design. Technical: Know: wide and flat based objects are more stable; importance of strength of structures. Additional: Features of castles. Why castles needed to be strong. A paper 2D net will make a 3 D shape. Designs are success criteria for a product.</p>	<p>Mechanical Systems - Making a parachute Design: Shapes - reduce air resistance/ increase/decrease speed. Nets. Personalising design. Make: Making model with accurate measuring, marking, cutting, assembling. Evaluate: Speed of product: effect of shape on speed, workmanship on performance. Technical: Kinetic energy (motion), air resistance (drag), effect of shape of object. Additional: Product change, aesthetics, templates/stencils, graphics,</p>	<p>Cooking/nutrition: What could be healthier? (Archived) Replaced by: Developing a recipe Design: Adapting traditional recipe. Substitutions result in nutritional changes. Write recipe to reflect changes. Design packaging for recipe. Make: Safely cut/prepare vegetables. Use equipment safely. Avoid cross contamination. Follow step by step recipes. Evaluate: Nutritional differences of different products and recipes. Identify/describe health benefits of food groups. Knowledge: Where meat comes from (inc. rearing, processing and animal welfare). Ingredient substitution. Nutritional calculator. How cross contamination occurs - bacteria and germs.</p>	<p>Digital world: Navigating the World Design: From client request, write design brief and develop design criteria; additional functions; annotated sketches; using CAD; Make: Materials and properties, inc. sustainability. Explain material choice; Prog. cardinal compass. Evaluate: Explaining suitability and functions. Develop awareness of sustainable design. Identify key industries utilising CAD. Demonstrating. Product concept pitch. Technical: Accelerometers; sensors (human input not necessary) Additional: Designers and design briefs. Meaning of multifunctional; magnetometer devices.</p>