

Cranford Park CE Primary School
Progression of Skills and Knowledge for Design and Technology

<p><u>D&T Progression of Skills and Knowledge</u> <u>Year R</u></p> <p><u>Early Learning Goal's</u></p> <ul style="list-style-type: none"> • Share their creations, explaining the process they have used • Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. • Use a range of small tools, including scissors and paintbrushes • Begin to show accuracy and care when drawing <p><u>Characteristics of Effective Learning</u></p> <ul style="list-style-type: none"> • Show curiosity about objects, events and people • Questions why things happen • Engage in open-ended activity • Thinking of ideas • Find ways to solve problems / find new ways to do things / test their ideas • Use senses to explore the world around them • Create simple representations of events, people and objects • Planning, making decisions about how to approach a task, solve a problem and reach a goal • Checking how well their activities are going • Changing strategy as needed • Reviewing how well the approach worked 	<p><u>My New School and On Safari</u> <u>Construction</u> – adding materials, e.g. lolly-sticks, to clay to create features (<i>clay animals</i>) <u>Cooking + Nutrition</u> – thinking about which foods keep us healthy (<i>snack time</i>) <u>Textiles</u> – feeling different fabrics and using words to describe (<i>different textures you might find at the zoo</i>)</p> <hr/> <p><u>All About Me Inside Out</u> <u>Construction</u> – Using different materials to create a picture, e.g. paper straws, cotton buds (<i>skeletons</i>) <u>Cooking + Nutrition</u> – Measuring and weighing using non-statutory measures e.g. spoons, cups (<i>gingerbread men</i>) <u>Textiles</u> – using fabric colours/textures to sort emotions (<i>mood monsters</i>)</p> <hr/> <p><u>Castles</u> <u>Construction</u> – using boxes and ‘junk’ to create models. (<i>3d castle, shield, sword</i>) <u>Cooking + Nutrition</u> – Measuring and weighing using balance scales (<i>fairy cake, castle, baking</i>) <u>Textiles</u> – basic running stitch through hessian fabrics (<i>prince/princess purse</i>)</p> <hr/> <p><u>Celebrations and New Life</u> <u>Construction</u> – building with nature materials (<i>making ‘nests’, using nature to make 2D/3D new life e.g. butterfly</i>) <u>Cooking + Nutrition</u> – growing plants we can eat (<i>cress</i>) <u>Textiles</u> – enhancing with materials (<i>e.g. materials/fabrics to make Easter nests, ‘Easter hats’</i>)</p> <hr/> <p><u>Big Beasts and Mini-Beasts</u> <u>Construction</u> – creating imprints into materials for effect (<i>using salt dough/clay and dino toys to print with- dinosaur fossils</i>) <u>Cooking + Nutrition</u> – healthy eating, basic slicing of fruit. (<i>Caterpillar fruit kebab</i>) <u>Textiles</u> – using fabric glue to fix/attach decoration (<i>dinosaur sock puppet</i>)</p> <hr/> <p><u>Rainbow Fish and Holidays</u> <u>Construction</u> – adding materials together (consistencies) to form structures (e.g. sand and water- sand sculptures) <u>Cooking + Nutrition</u> – talking about & trying different types of ‘holiday’ foods, foods from around the world (<i>Holiday day</i>) <u>Textiles</u> – using fabrics for a purpose (<i>using large fabrics to create ‘outfits’</i>)</p>
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D&T Progression of Skills and Knowledge

Year 1

DESIGNING

- Design appealing products for a **particular user** based on **simple design criteria**.
- Generate initial ideas and design criteria **through own experiences**.
- Develop and communicate these ideas through **talking and drawing**.

MAKING

- Select and **use simple utensils, tools** and equipment to perform a job e.g. **cut, slice and chop safely; marking out, cutting, joining and finishing; cut, shape and join paper and card**.
- Select from a **range of ingredients** and **materials** according to their characteristics to create a chosen product.

EVALUATING

- **Taste, explore and evaluate** a range of products to determine the intended user's preferences for the product
- Evaluate their ideas throughout and finished products **against design criteria, including intended user and purpose**.

The Light House Keeper's Lunch

Construction- Joining Techniques (*lunch box*)

Design and make a lunch box suitable to hold food.

- Select from and use a range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing)
- Join appropriately for different materials and situations e.g. glue, tape
- Explore how materials can be made stronger, stiffer and more stable

Out in the Garden

Cooking + Nutrition Which part of the plant are we eating? (*roasted vegetables*)

Design and make a healthy dinner. Use the basic principles of a healthy and varied diet to prepare a dish.

- Group familiar food products e.g. fruit and vegetables
- Chop a range of products (importance of bridge and claw techniques)
- Understand where food comes from

Toys from the Past

Textiles- Running Stitch + Laced Running Stitch (*peg-doll storage bag*)

Design and make a bag suitable for storage of delicate toys.

- Join fabrics by using running stitch and glue
- Experiment with laced running stitch for decoration
- Attach decorations using fabric glue

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Year 2

DESIGNING

- Generate ideas based on simple design criteria and their own experiences, **explaining** what they could make.
- Develop, model and communicate their ideas through discussion, **mock-ups**, drawing and **labelling**.

MAKING

- Plan by suggesting what to do next.
- Select **and use tools, equipment, skills and techniques** to perform practical tasks, explaining their choices.
- Select new and **materials, components**, reclaimed materials and **construction kits to build** and create their products.
- Use simple **finishing techniques** suitable for the products they are creating.

EVALUATING

- **Explore a range of existing products related to their design criteria.**
- Evaluate their product by **discussing how well it works** in relation to the purpose, the user and whether it meets the original design criteria.

One Small Step

Construction- *Wheels and Axels (Moon Buggy)*

Design and make a wheeled vehicle.

- Use a range of materials to create models with wheels and axles e.g. tubes, dowel, cotton reels
- Attach wheels to a chassis using an axle
- Mark out materials to be cut using a template

Ahoy There!

Cooking + Nutrition- *Mixing Ingredients (Dips and Dippers)*

Design and make a healthy 'dip'.

- Understand the need for a variety of foods in a diet, introduction of the eat well plate
- Explore foods (dips) from around the world
- Select from and use a wide range of ingredients, according to their characteristics
- Cut, grate and chop a range of ingredients

A Step back in time

Textiles- *Attaching decoration by sewing (Fabric Nurse Face)*

Design and make a fabric face

- Cut out shapes which have been created by drawing round a template onto the fabric
- Decorate fabrics with buttons, beads, sequins, braids, ribbons

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<p style="text-align: center;"><u>D&T Progression of Skills and Knowledge</u> Year 3</p> <p><u>DESIGNING</u></p> <ul style="list-style-type: none"> • Generate realistic ideas through discussion and design criteria for an appealing, functional product fit for purpose and specific user/s. • Use annotated sketches, prototypes, final product sketches and pattern pieces to develop and communicate ideas. <p><u>MAKING</u></p> <ul style="list-style-type: none"> • Plan the main stages of making. • Select from and use a range of appropriate utensils, tools and equipment with some accuracy related to their product. • Select from and use finishing techniques suitable for the product they are creating. <p><u>EVALUATING</u></p> <ul style="list-style-type: none"> • Investigate a range of 3-D textile products, ingredients and lever and linkage products relevant to their project. • Test their product against the original design criteria and with the intended user. • Evaluate the ongoing work and the final product with reference to the design criteria and the views of others. 	<p><u>All About Me</u></p> <p>Cooking + Nutrition- Sandwich making with Warburtons <i>Design and make a healthy sandwich...</i></p> <ul style="list-style-type: none"> -Understand and apply the principles of a healthy and varied diet -Develop sensory vocabulary/knowledge using smell, taste, texture and feel -Join and combine a range of ingredients e.g. snack foods -Build upon chopping, slicing and spreading skills. <p>Construction + Nutrition- dietary info. net making (Sandwich Packaging) <i>...and create packaging</i></p> <ul style="list-style-type: none"> -Create prototype nets to explore the best structure and strength -Select from and use a wider range of tools and equipment to perform practical tasks accurately
	<p><u>That's the way to do it</u></p> <p>Textiles- Joining fabrics + blanket stitch (Puppet Show) <i>Design and make a glove puppet.</i></p> <ul style="list-style-type: none"> -Make a prototype product using J cloths -Understand seam allowance -Join fabrics using running stitch and blanket stitch
	<p><u>Opposites Attract</u></p> <p>Construction- Sheet Materials (Levers and Linkages) <i>Design and make a mechanical poster</i></p> <ul style="list-style-type: none"> -Cut slots -Cut internal shapes -Use lolly sticks/card to make levers and linkages -Use linkages to make movement larger or more varied -Use and explore complex pop ups

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D&T Progression of Skills and Knowledge

Year 4

DESIGNING

- Generate and **clarify ideas** through **discussion with peers** to **develop design criteria to inform the design of products that are fit for purpose**, aimed at particular individuals or groups.
- Use annotated sketches and appropriate information and **communication technology**, e.g. **web-based research**, to develop and communicate ideas.
- Generate, develop, **model** and communicate realistic ideas through discussion and, as appropriate, annotated sketches, **cross-sectional and exploded diagrams**.

MAKING

- Order the main stages of making.
- Select and use appropriate tools to **measure, mark out, cut, score, shape** and combine with some accuracy related to their products.
- Explain their choice of materials according to functional properties and aesthetic qualities.
- Select from and use materials and components, **including ingredients, construction and electrical components** according to their function and properties

EVALUATING

- Investigate and evaluate a range of products including the **ingredients, materials, components** and **techniques** that are used.
- Test and evaluate their own products against design criteria and the intended user and purpose.
- Evaluate their ideas and products against their own design criteria and **identify the strengths and areas for improvement in their work**.

Tomb Raiders

Construction- Building structures & Incorporating electricity (Torches)

Design and make a 3D structure incorporating a circuit.

- Incorporate a circuit with a bulb or buzzer into a model
- Prototype frame and shell structures
- Create shell or frame structures, strengthen frames with diagonal struts
- Make structures more stable by giving them a wide base

Goodbye to the Romans

Textiles- Create pattern by stitching (Patterned Felt Saxon Broach)

Design and make a stitched pattern on felt, with a fastening to attach.

- Use appropriate decoration techniques e.g. applique (glued or simple stitches)
- Create a simple pattern
- Understand the need for patterns
- Explore fastenings and recreate some e.g. sew on buttons and make loops

Don't bite off more than you can chew!

Cooking + Nutrition- Budget and Buy & cutting/peeling fruit (Fruit Salad)

Design and make a healthy pudding.

- Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed
- Measure and weigh ingredients appropriately
- Analyse the taste, texture, smell and appearance of foods
- Make healthy eating choices from and understanding of a balanced diet

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Year 5

DESIGNING

- Generate **innovative ideas** through research **including surveys, interviews and questionnaires** and discussion with peers to **develop a design brief and criteria for a design specification.**
- Design **purposeful, functional, appealing** products for the intended user that are fit for purpose based on a simple **design specification.**
- Develop and communicate ideas through discussion, annotated drawings, exploded drawings and **drawings from different views.**

MAKING

- Produce detailed lists of equipment and **fabrics** relevant to their tasks.
- Write a step-by-step plan, including a list of resources required.
- Select from and use, a range of appropriate utensils, tools and equipment accurately to measure and combine **appropriate ingredients, materials and resources.**

EVALUATING

- Investigate and **analyse products** linked to their final product.
- Compare the final product to the original design specification and **record the evaluations.**
- Test products with intended user **and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose.**
- Consider the views of others to improve their work.

SPACE

Construction- Cams (Interactive Resource)

Design and make a moving resource using cams and followers

- Use a cam to make an up and down mechanism
- Join materials using appropriate methods
- Cut strip wood, dowel, square section wood accurately to 1mm

Italy...Wish you were here?

Cooking + Nutrition- Food from another Culture (Italian Pizzeria)

Design, prepare and make a savoury dinner using a range of cooking techniques.

- Select and prepare foods for a particular purpose
- Decorate appropriately
- Cut and shape ingredients using appropriate tools and equipment e.g. grating
- Taste a range of ingredients/food items to develop a sensory food vocabulary to use when designing

Marvellous Mayans

Textiles- Batik (Cushions)

Design and make a 3D product, experimenting with dye and pattern creating.

- Experiment with pattern and line
- Create patterns using dye
- Create 3D products using pattern pieces and seam allowance
- Pin and tack pieces together

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<u>D&T Progression of Skills and Knowledge</u> <u>Year 6</u>	
<p><u>DESIGNING</u></p> <ul style="list-style-type: none">• Use research using surveys, interviews, questionnaires and web-based resources to develop a design specification for a range of functional products.• Develop a simple design specification to guide the development of their ideas and products, taking 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. and, where appropriate, computer-aided design <p><u>MAKING</u></p> <ul style="list-style-type: none">• Formulate a step-by-step plan to guide making, listing tools, equipment, materials and components.• Competently select from and use appropriate tools to accurately measure, mark, cut and assemble materials,	<p><u>Bombs, Battles, Bravery</u></p> <p>Cooking + Nutrition- <u>Combining ingredients</u> (Rations) <i>Adapt, design and make war time recipes.</i></p> <ul style="list-style-type: none">-Prepare food products taking into account the properties of ingredients and sensory characteristics-Join and combine food ingredients appropriately e.g. beating, rubbing in-Weigh and measure using scales-Understand how key events and individuals in design and technology have helped shape the world <hr/> <p><u>Every Beat of your Heart</u></p> <p>Construction- <u>Incorporating electricity</u> (Buggies) <i>Design and make a moving vehicle with electricity</i></p> <ul style="list-style-type: none">-Understand and incorporate motor and a switch into a model-Control a model using an ICT control programme-Use bradawl to mark hole positions-Use hand drill to drill tight and loose fit holes-Apply their understanding of how to strengthen, stiffen and reinforce more complex structures

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and **securely connect electrical components** to produce reliable, functional products.

- **Use finishing and decorative techniques** suitable for the product they are designing and making.

EVALUATING

- Continually evaluate and **modify** the **working features** of the product to match the initial design specification.
- Critically evaluate their products against their design specification, intended user and purpose, identifying strengths and areas for development, and **carrying out appropriate tests**.
- **Test the system** to demonstrate its effectiveness for the intended user and purpose.

California Dreaming

Textiles- Embroidery (Pennants)

Design and make an embroidered decorative product

- Decorate textiles appropriately before joining
- Choose appropriate stitching