

***Our Intent is: To support our pupils in answering the question, "How do we design, make and evaluate solutions to real and relevant problems?" Using creativity and innovation, we inspire pupils to develop skills which impact on daily life.***



**Forton Primary School  
Design and Technology**

**Pendle Class  
Autumn 1  
Year B**

**N.C. LINKS: Design and Technology**

When designing and making, pupils should be taught to:

**Design**

- use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups
- generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

**Make**

- select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, 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

**Evaluate**

- investigate and analyse a range of existing products

**Key Concept: Textiles**

**Focus: Using computer-aided design (CAD) in textiles**

**Key Question: How can I make my design strong enough for me to use?**

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	<ul style="list-style-type: none"><li>• evaluate their ideas and products against their own design criteria and consider the views of others to improve their work</li><li>• understand how key events and individuals in design and technology have helped shape the world</li><li>• <b>Technical knowledge</b></li><li>• apply their understanding of how to strengthen, stiffen and reinforce more complex structures</li><li>• understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]</li><li>• understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]</li><li>• apply their understanding of computing to program, monitor and control their products</li></ul>
<p><b>Unit Overview:</b> To use a computer to design and combine fabrics together to make a useful product.</p>	<p><b>Vocabulary:</b></p> <p>computer aided design (CAD), computer aided manufacture (CAM) font, lettering, text, graphics, menu, scale, modify, repeat, copy, flip design brief, design criteria, design decisions, innovative, prototype seam, seam allowance, wadding, reinforce, right side, wrong side, hem, template, pattern pieces</p>
<p><b>Possible Outcome:</b></p> <p>tablet case    mobile phone carrier    shopping bag    insulating bag    hat/cap    garden tool belt    slippers    sandals    fabric advent calendar    fabric door stop</p>	<p>names of textiles and fastenings used, pins, needles, thread, pinking shears, fastenings, iron transfer paper</p>

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	annotate, functionality, innovation, authentic, user, purpose, evaluate, mock-up, prototype
<p><b>Intended User:</b></p> <p>themselves    younger children                  older children teenagers    parents    school grandparents    teachers gardeners</p>	
<p><b>Building on Prior learning when B follows A:</b></p> <ul style="list-style-type: none"><li>• Experience of stitching, joining and finishing techniques in textiles.</li><li>• Experience of making and using textiles pattern pieces.</li><li>• Experience of simple computer-aided design applications.</li></ul>	
<p><b>Key Skills (Disciplinary)</b></p> <p><b>Designing</b></p> <ul style="list-style-type: none"><li>• Generate innovative ideas through research including surveys, interviews and questionnaires.</li><li>• Develop, model and communicate ideas through talking, drawing, templates, mock-ups and prototypes including using computer-aided design.</li><li>• Design purposeful, functional, appealing products for the intended user that are fit for purpose based on a simple design specification.</li></ul> <p><b>Making</b></p>	

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- Produce detailed lists of equipment and fabrics relevant to their tasks.
- Formulate step-by-step plans and, if appropriate, allocate tasks within a team.
- Select from and use a range of tools and equipment, including CAD, to make products that are accurately assembled and well finished. Work within the constraints of time, resources and cost.

### **Evaluating**

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

### **Technical knowledge and understanding**

- A 3-D textile product can be made from a combination of accurately made pattern pieces, fabric shapes and different fabrics.
- Fabrics can be strengthened, stiffened and reinforced where appropriate.

### **Sequence of Lessons:**

#### **1. Investigative and Evaluative Activities (IEAs)**

- Children investigate and evaluate a range of existing textiles products and how they have been constructed using disassembly, and evaluate what the fabric shapes look like, how the parts have been joined, how the product has been strengthened and stiffened, what fastenings have been used and why.

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- Investigate work by designers and their impact on fabrics and products. Use questions to develop understanding e.g. *Is the product functional or decorative? Who would use this product? What is its purpose? What design decisions have been made? Do the textiles used match the intended purpose? How has it been made? What has been used to enhance the appearance? Is the design innovative?*
- Children investigate properties of textiles through investigation e.g. exploring insulating properties, water resistance, wear and strength of textiles.

## **2. Focused Tasks**

- Develop computer-aided design (CAD) skills by using pattern making software to generate, modify, scale, save and print pattern pieces. Recognise that designs can be easily modified and repeated on the computer without the need for a physical product. Investigate using art packages on the computer to design prints that can be applied to textiles using iron transfer paper.
- Develop skills of 2-D paper pattern making using CAD and create a 3-D paper or Dipryl mock-up of a chosen product. Remind/teach how to pin a pattern on to fabric ensuring limited wastage, how to leave a seam allowance and use different cutting techniques.
- Develop skills of threading needles and joining textiles using a range of stitches, building upon children's earlier experiences of stitches e.g. improving appearance and consistency of stitches and introducing new stitches. If available, demonstrate and allow children to use sewing machines to join fabric with close adult supervision.
- Develop skills of sewing textiles by joining right side together and making seams. Children should investigate how to sew and shape curved edges by snipping seams, how to tack or attach wadding or stiffening and learn how to start and finish off a row of stitches.

## **3. Design, Make and Evaluate Assignment**

- Set an authentic and meaningful design brief. Children generate ideas by carrying out research using surveys, interviews, questionnaires and the internet. Develop a design specification for their product.
- Communicate ideas through detailed, annotated drawings from different perspectives. Drawings should indicate the design decisions made, methods of strengthening, the type of fabrics to be used and the types of stitching that will be incorporated.
- Produce step-by-step plans, lists of tools equipment, fabrics and components needed. Allocate tasks within a team if appropriate.
- Develop their design using CAD software to produce pattern pieces and art programmes to produce decoration and design prints that can be applied to textiles.
- Make high quality products applying knowledge, understanding and skills from IEAs and FTs. Incorporate simple computer-aided manufacture (CAM) if appropriate e.g. printing on fabric. Use a range of techniques to ensure a well-finished final product that matches the intended user and purpose.

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- Evaluate both as the children proceed with their work and the final product in use, comparing the final product to the original design specification. Critically evaluate the quality of the design, the manufacture, functionality, innovation shown and fitness for intended user and purpose, considering others' opinions. Communicate the evaluation in various forms e.g. writing for a particular purpose, giving a well-structured oral evaluation, speaking clearly and fluently.

Enhancements: N/A

End of Unit Outcome: A useable creation