1. Year Groups

Years 6

2. Aspect of D&T

Textiles

Focus

Using computer-aided design (CAD) in textiles

3. Key learning in design and technology

Prior learning

- Experience of stitching, joining and finishing techniques in textiles.
- Experience of making and using textiles pattern pieces.
- Experience of simple computer-aided design applications.

Designing

- Generate innovative ideas through research including surveys, interviews and questionnaires.
- Develop, model and communicate ideas through talking, drawing, templates, mock-ups and prototypes including using computer-aided design.
- Design purposeful, functional, appealing products for the intended user that are fit for purpose based on a simple design specification.

Making

- 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.

4. What could children design, make and evaluate?

tablet case mobile phone carrier
shopping bag insulating bag hat/cap
garden tool belt slippers sandals
fabric advent calendar fabric door stop
other – specify

5. Intended users

themselves younger children
older children teenagers parents school
grandparents teachers gardeners
other – specify

6. Purpose of products

celebration educational interests
hobbies environmental lifestyle
religious protection other – specify

7. Links to topics and themes

Clothing Hot and Cold Communication
Festivals Celebrations Weather
Sustainability Our School Environment
other – specify

8. Possible contexts

home school leisure culture
enterprise environment local community
other – specify

9. Project title

Design, make and evaluate a _____ (product) for _____ (user) for _____ (purpose).

To be completed by the teacher. Use the project title to set the scene for children's learning prior to activities in 10, 12 and 14.

10. 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.
- 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.

11. Related learning in other subjects

- **Spoken language** – ask questions, formulate, articulate and justify answers, arguments and opinions. Consider different viewpoints.
- **Science** – work scientifically investigating properties of fabrics. Plan different types of scientific enquiries to answer questions.
- **History** – significant people in their locality who are linked to textiles.

12. Focused Tasks (FTs)

- 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.

13. Related learning in other subjects

- **Computing** – select, use and combine a variety of software to design and create a range of patterns and other content that accomplish given goals, including presenting data and information.
- **Mathematics** – apply knowledge of how 2-D patterns can be joined to make 3-D products; apply skills of accurate measuring using standard units i.e. cm/mm.
- **Art and design** – investigate methods of adding colour, pattern and texture on to textiles through appliqué, iron transfer paper and/or dye sublimation.

14. Design, Make and Evaluate Assignment (DMEA)

- 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.
- 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.

15. Related learning in other subjects

- **Computing** – children express themselves and develop ideas using a range of information and communication technology resources.
- **Art and design** – use and apply drawing skills including art programmes on the computer.
- **Spoken language** – consider and evaluate others' viewpoints. Give a well-structured oral evaluation to include relevant technical vocabulary.

16. Possible resources

computer software such as Techsoft 2D Primary, Wild Things by Wild Ginger, Paint and Microsoft Word

existing textile products linked to their product for investigation and deconstruction

wide selection of textiles including reclaimed and reusable fabrics, Dipryl, paper for making mock-ups

pins, needles, thread, measuring tape, left/right handed fabric scissors, pinking shears, iron, iron transfer paper, sewing machine

range of fastenings, materials for insulating or strengthening e.g. bubble wrap, wadding

finishing materials e.g. sequins, buttons, fabric paints

17. Key vocabulary

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

names of textiles and fastenings used, pins, needles, thread, pinking shears, fastenings, iron transfer paper

annotate, functionality, innovation, authentic, user, purpose, evaluate, mock-up, prototype

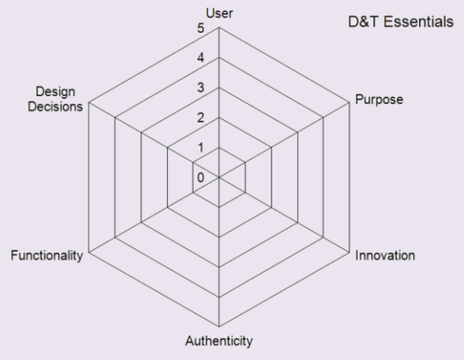
18. Key competencies

problem-solving teamwork negotiation
consumer awareness organisation motivation
persuasion leadership perseverance
other – specify

19. Health and safety

Pupils should be taught to work safely, using tools, equipment, materials, components and techniques appropriate to the task. Risk assessments should be carried out prior to undertaking this project.

20. Overall potential of project



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