Year 9 Textiles – Festival hats and Wearable technology

Wearable Tech

The main focus is on understanding a range of products and the materials and processes used in their manufacture.

- Be able to evaluate existing products that are considered to be wearable technology
- Generate a number of ideas that include the use of technical fibres and fabrics that will enhance the experience of the wearer and can be considered as wearable technology

Designing

- There are opportunities to design products inspired by the examples included here and in further research, that incorporate different technologies into wearable products.

Making

- This is not intended as a making unit, however students may develop ideas into viable products that could be prototyped.

Evaluating

- Evaluate existing products and identify their purpose and methods of achieving this
- Who are making these products? Research products and companies.

Technical knowledge

- Students should explore how designers' products are manufactured and the materials and processes used.

1. Key Stage

Late KS3
Year 9

Wearable Technology

2. D&T focus

Technology in society

P.O.S coverage

DA8, DA11, EB3, EB7

3. Key learning in D&T

Prior learning

- Experience of wearable products and how smartphone apps control microprocessors.

Understand

- The main focus is on understanding a range of products and the materials and processes used in their manufacture.

4. What could students design/make, and who may use them?

The outcome of this unit is not intended to be a finished product. However students can generate ideas for products that include light, sensors, temperature control and which are controlled by smart phones.

5. Unit context / brief

Understanding and applying knowledge of technologies in textiles when developing ideas for products.

6. Possible topics / themes

Sports technology, outdoor clothing, communications, fashion, developing markets.

7. D&T areas

- **Designing**
  - There are opportunities to design products inspired by the examples included here and in further research, that incorporate different technologies into wearable products.
- **Making**
  - This is not intended as a making unit, however students may develop ideas into viable products that could be prototyped.
- **Evaluating**
  - Evaluate existing products and identify their purpose and methods of achieving this
  - Who are making these products? Research products and companies.
- **Technical knowledge**
  - Students should explore how designers' products are manufactured and the materials and processes uses

8. Related learning in other subjects

- **Science** – electronics and computer control.
- Computing – control systems.
- Speak to colleagues to see how this can fit into other subject areas.

9. Possible resources

21st Century Smart and Technical Textiles

Examples or photos of wearable technologies in products developed by other designers.

10. Key vocabulary

Wearable technology, sensors, temperature control, photochromic, thermochromic, operating systems.

11. Characteristics

Students will develop an increased knowledge and understanding of materials and their application.
Take creative risks and apply existing practice to develop new inventive design ideas

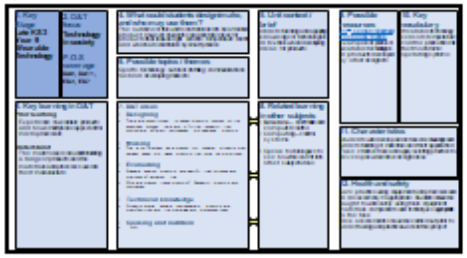
12. Health and safety

Safe practice using equipment and processes and in disassembly, if appropriate. Students 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 and practical work in this project.

Key Learning:

- **Textiles isn't about just sewing clothes and cushions**
- **Technical textiles are hugely important to us and the way we live**



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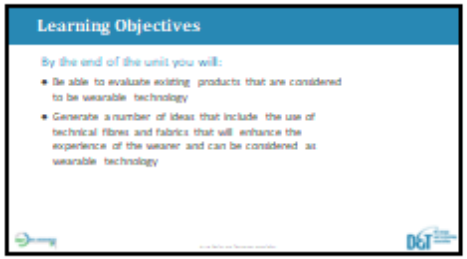

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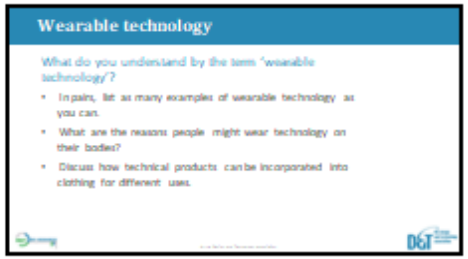

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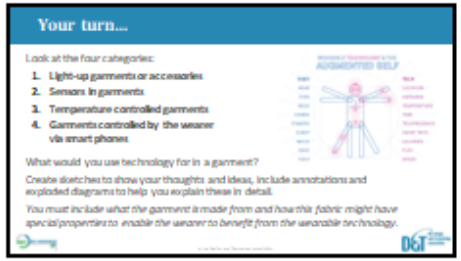

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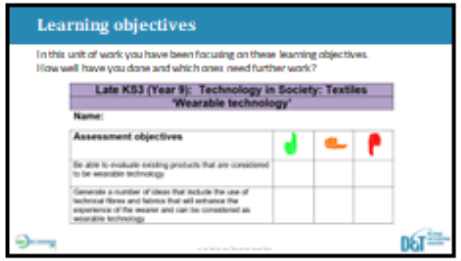

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By the end of the unit students will:

- Understand the design specification and generate a range of design ideas that meet it
- Adapt your original design ideas in order to comply with changing circumstances and yet stick as closely as possible to the original design specification
- Understand the need to model your ideas, evaluate and refine them accordingly, using CAD/CAM if available
- Apply previous knowledge of textile processes to the development and execution of your product and understand where a new process might be needed
- Evaluate your product throughout the making process in order to achieve a well-made, finished hat in the time given
- Understand the relevance of testing a finished product both against specifications and also on user groups. Be able to implement feedback and reflection into developing the product further
- Demonstrate understanding of the concepts of cradle to grave and also the circular economy and be able to apply it to your final product

1. Key Stage

Mid KS3 Year 9

Festival headgear

2. D&T focus

Design and make

Textiles

P.O.S coverage

3. Key learning in D&T

Key learning

- Take creative risks when designing for a given context.
- Be flexible and able to adapt ideas to changing circumstances.
- Evaluation is a constant process throughout designing and making.
- Understand the issues surrounding 'cradle to grave' approach to textile goods and how a 'circular economy' approach might be adopted.

Skills

- To be adaptable and open to new ideas when designing.
- Choose appropriate fabrics and

4. What could students design/make, and who may use them?

Students design and make headgear for a festival visitor.

5. Unit context / brief

Students produce ideas and a design specification for headgear to be worn by a visitor to a festival of their choice.

At a point in the project they are asked to make a basic beanie hat based on their initial design idea.

6. Possible topics / themes

Festivals: cultural, music, religious, sports, carnival, hobby/interest.

7. D&T areas

- **Designing**
  - Designing textiles products appropriate for the needs of the user and context.
  - Developing a design specification.
  - Adapting original design ideas to comply with changing circumstances and yet stick as closely as possible to the original design specification.
- **Making**
  - Apply previous knowledge of textile processes to making their product and understand where a new process might be needed.
- **Evaluating**
  - Evaluate their product throughout the making process.
  - Understand the relevance of testing a finished product against specifications and on user groups. Be able to implement feedback and reflection into developing the product further
- **Technical knowledge**
  - Understand the concepts of cradle to grave

8. Related learning in other subjects

- Speak to colleagues to see how this can fit into other subject areas.

9. Possible resources

Sample hats.

Design specification sheets.

Making plans.

Resources for cutting, printing and other decorative techniques.

2D Design or similar CAD package.

Sketching materials.

10. Key vocabulary

Design specification, user needs.
Laser cutter, knife cutter, sublimation printing.
Cradle to grave, circular economy.

11. Characteristics

Students will develop an increased knowledge and understanding of different textiles product production methods using different tools and machinery, adapting to changing circumstances and recognising the importance of the circular

12. Health and safety

Safe practice using textiles equipment and processes. Students 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 and practical work in this project.

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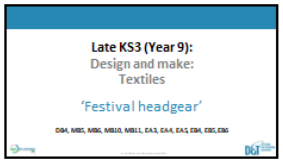

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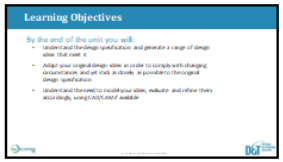

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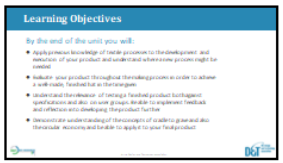

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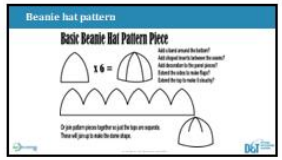

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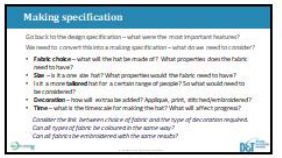

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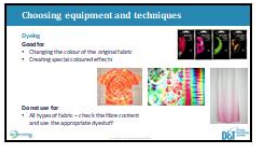

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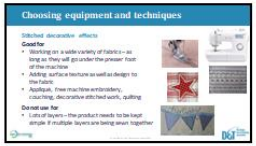

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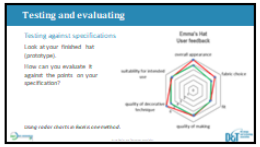

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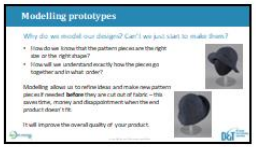

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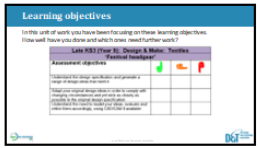

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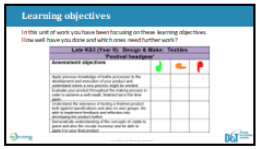

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Unit 1										
Week	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Big Ideas (key concepts)	Textiles isn't about just sewing clothes and cushions Technical textiles are hugely important to us and the way we live	Know and understand that textiles play a massive part in our everyday lives – apart from the obvious fashion and interior furnishing sectors Show through independent investigation an understanding of at least one type of technical textile and how it has been engineered for a specified end use Demonstrate an understanding of more than one example of the wider use of textiles	Develop detailed design specifications to guide their thinking use research including the study of different cultures, to identify and understand user need identify and solve their own design problems	To understand how to annotate and refine your design.	To know how to use a sewing machine.	To understand how to select appropriate materials and fabrics for your design.	To understand the process of sewing your hat together and how to add surface decoration	To understand the process of sewing your hat together and how to add surface decoration	To understand the importance of finishing your hat to a high standard whilst taking safety into consideration.	To understand how to evaluate your soft toy fully and use your evaluation to inform your work next year.
Lesson Topics Sequence	KO starter Project and term overview Talk through Ppt on wider use of Textiles, technical uses, smart and medical uses. HW further research on technical fabrics and smart materials Review Qs	KO stater LO and recap project Students design future uses of fabrics and technological advances in Textiles Review questions	KO stater LO and introduce project of designing and making a hat for festival use Mind map ideas for festivals and types of headwear Students design their own unique ugly doll Review questions	KO stater LO and recap project Students produce a range of design ideas and chose final idea for their product, adding annotation Review questions	KO self quizzing LO and recap Recap how to use a sewing machine Demo of making a pattern, students begin making their own pattern based on measurements Review questions	KO self quizzing LO and recap Demonstration of how to use a sewing machine for those not completed last lesson. Driving test Students making their own pattern. Review questions	KO self quizzing LO and recap Applique any pieces on hat Review questions	KO self quizzing LO and recap Sewing hat Review questions	KO self quizzing LO and recap Completion of hat and evaluation Review questions.	KO self quizzing LO and recap Completion of hat and evaluation Review questions.
Key Resources	Ppt Design sheets	Ppt Design sheets	Power point Design sheets Colours Examples Ppt	Power point Design sheets Colours Examples Ppt	Power point Sewing machines Design sheets Paper for patterns	Power point Sewing machines Design sheets Paper for patterns Pre-made patterns for support	Power point Sewing machines Design sheets Fabrics for hats stuffing	Power point Sewing machines Design sheets Fabrics for hats stuffing	Power point Sewing machines Design sheets Fabrics for hats stuffing	Power point Evaluation sheets

					Pre-made patterns for support Soft tape measures	Soft tape measures				
Key learning and skills	Textiles isn't about just sewing clothes and cushions Technical textiles are hugely important to us and the way we live	Know and understand that textiles play a massive part in our everyday lives – apart from the obvious fashion and interior furnishing sectors Show through independent investigation an understanding of at least one type of technical textile and how it has been engineered for a specified end use Demonstrate an understanding of more than one example of the wider use of textiles	IT Rm would help but not vital Paper Ppt	How to annotate & finalise designs and decide how they will become a reality	To know how to use a sewing machine Know how to measure and rrecord	Selecting suitable fabrics and materials Right and wrong side of fabric How to start constructing a 3D object from 2D fabric			Selecting suitable fabrics and materials Right and wrong side of fabric How to start constructing a 3D object from 2D fabric	How to evaluate purposefully H ow to evaluate, reflect and refine