

Scheme of Learning: Smart and Modern Materials Wearable project

Topic Sequence: Year 8 Design & Technology Rotation		
1	2	3
LED Mood lamp	Textiles – Wearable Modern Textiles	Food Technology

Topic Overview:

This project serves as an introduction to the use of a sewing machine, giving students confidence using machinery, and making them aware of Smart and Modern materials used for many products and uses; both to solve real-life problems or just to make novelty products. Students are introduced to a range of natural and synthetic fabrics and will understand where a range of fabrics originate, and how they are produced using either weave, knit or bonded techniques. Once this basic fabric knowledge is acquired, students then research reflective fabrics and other smart fabrics to design their own product. Students will make a reflective snap band, using the sewing machine safely. They will gain a knowledge of the parts of a sewing machine, how to use a sewing machine, and how to troubleshoot their own errors whilst using the sewing machine.

Lesson Sequence:

The lessons have been sequenced to purposely build pupils' understanding and knowledge of Design & Technology that should have been delivered during Key Stage 2. There needs to be a balance between delivering core knowledge, all of which must be related to the intended practical outcome, also developing students' confidence in using effectively and accurately the equipment and tools.

The topic starts with a lesson for exploring some smart and modern materials. This is a new topic which many will not have visited in KS2. This sets the scene for the practical project that will follow. It is good practice for students to become practised in research and comprehension. Teachers demonstrate a range of smart and modern fabrics explaining how they work to cement this theory knowledge. There is a subsequent home learning tasks and comprehension tasks throughout the project which refer back to this knowledge.

The main material group used through this project is textile materials; neon polycotton and reflective strips. Students are thought how to categorise fabrics into natural and synthetic and how to distinguish between a woven, knitted and bonded fabric. This encourages the use of Textile specific vocabulary throughout the project and beyond.

The following sequence of lessons takes the students through a basic project manufacture, including accuracy and skill in measuring and marking out, using paper patterns to mark their fabric, using sewing equipment and the becoming confident on the sewing machines.

With these practical skills, students produce a reflective snap-band for use when cycling or walking in the dark. How to design a product is then explained, with the use of ACCESSFM to aid their design thought process. Students design their own cycle-product which includes smart materials to enhance the safety of the wearer/user.

Sequence of Lessons:	
1	introduction to smart and modern fabrics
2	Fabric construction experimentation – weave, knit, bond
3	Introduction to a sewing machine – learning the parts
4	Introduction to a sewing machine – Sewing using paper
5	Cutting and measuring of snap band fabric
6	Flow Chart of the making process
7	Stage 1 of making – threading a machine sewing reflective strip down
8	Product analysis – reflective jacket
9	Stage 2 of making – Sewing seams
10	Revision lesson
11	Assessment lesson & Literacy task
12	Product Design – Design Smart fabric product
13	Stage 3 of making – Insert snap band and complete product

Topic Resources:			
Knowledge Map:	Wearable Modern Textiles	Prescribed Sources:	None

Assessment:	
Knowledge:	Microsoft Forms Quiz Comprehension starter tasks.
Application of Knowledge:	Flow Diagram of their making process. Practical skills – final product Design of a cycle product with smart materials

Supportive Reading:	
Technology Student	technologystudent.com
BBC Bitesize Smart Materials	Smart materials - Developments in new materials - AQA - GCSE Design and Technology Revision - AQA - BBC Bitesize