Teacher Resource Bank

GCE Product Design (Textiles)

Smart and Modern Textiles

Smart and Modern Textiles

This is a minefield of confusion and inaccurate information. Students need to be able to differentiate between textile materials which are *smart,* and those which are *technical/modern*.
A smart material is defined as one which is able *to react to external stimulus / changes in the environment without human intervention.*
This handout has been put together to help students and their teachers to differentiate between the different groups of materials in order that they may prepare for and answer examination questions with greater confidence.

Smart Materials include ones that:

- monitor body functions and administer medicines/give warnings;
- maintain a personal micro-climate, eg Stomatex, Outlast;
- can provide buoyancy and support, eg bodysuits for medical/physiotherapy support ;
- have chromatic properties and change colour in response to specific situations;
- have shape memory, eg Corpo Nove shirt which adjusts to differing temperatures;
- are self-cleaning, eg nano-technology fabrics triggered by sunlight;
- use biomimetics that imitate nature, eg Fastskin, Stomatex;
- can generate solar power when exposed to sunlight;
- can sense and track movement, eg SensFloor Smart carpets.

Technical and Modern Materials include the following examples:

- Gore-Tex
- Kevlar & Nomex
- Phosphorescent textiles
- Reflective textiles using glass beads
- Fabrics that wick moisture away from the body, eg Coolmax
- Microencapsulated fibres, eg those which release scents
- Fabrics which protect against bacteria, eg Purista, Chitopoly
- Fabrics with electronics, eg GPS systems,
- Geotextiles
- Materials using Nano-technology
- Microfibres