

Year group 9	Subject: Smart Materials - thermochromic beanbag
National curriculum	<p>DT Make S 79.02 : select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties</p> <p>DT Evaluate S 79.02 : investigate new and emerging technologies</p> <p>Last year the students were introduced to embroidery and how to construct 3D felt monster using laser cut felt templates. The students will use some on the same sewing equipment but will also be introduced to the sewing machine.</p>
Rationale	Students need to learn about smart materials. They do this by experiencing some practically, and researching others on computer. Students in this year are in small groups that allow us to handle chemical based pigments and supervise them on the sewing machine. This units builds on the knowledge of properties of materials from Year 7 DT, introducing them to more modern materials, including nano-technology. Using a sewing machine for creating textiles builds on the hand embroidery course in Year 7 and the Gee Bend Quilters group project in Year 8.
Vocabulary:	<p>Keywords</p> <p>Smart Materials, Thermochromic, Micro Encapsulation, Photochromic, Technical textiles, Kevlar, Nomex, Conductive fabrics, Nanotechnology, Shape memory polymer</p>
Cultural Capital:	Designing using smart materials and new technologies. Knowing how we can use the inherent properties of some smart and modern materials to better control our environment.
Key assessments- name the assessments	<p>Green assessment grid linked to EDSM.</p> <p>Self-assessment of the thermochromic beanbag.</p> <p>Oral feedback.</p>
What do children know/ can do now (EDSM)	Recognise how nanoscience has lead to the development of new and emerging technologies and explore smart materials and technical materials. Experience using a sewing machine.