Pearson Edexcel

Examiners' Report
Principal Examiner Feedback

Summer 2024

Pearson Edexcel GCSE
In Design & Technology (1DT0)
1E: Textiles

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Introduction
This is the fourth full cohort of candidates that has taken the reformed (9-1) GCSE Design Technology.

There are six different material specialist papers on offer, each with a common core in Section A which was worth 40 marks and a Section B worth 60 marks based on one of the six material areas; Metals, Papers and Boards, Polymers, Systems, textiles and Timbers.

Question 1 (a)(i) The most common answer was soft alongside absorbent with some candidates not understanding what a property is and writing dries quickly or used the words water repellent. The occasional answer of "insulator" on its own was observed but was not acceptable since it was not qualified as being a thermal insulator.

It is important to stress here that these opening four small questions are about the properties of materials in the context of the product or component given in the table and therefore generic properties will not be accepted. Candidates often stated characteristics of materials or products instead of properties. A clearer understanding of the difference between these is needed.

Question 1 (a)(ii) This question was not particularly well answered with a large proportion of candidates referring to the material being lightweight, decorative or easy to mould. It was clear many did not understand resin as a material. The most common correct answer was hard, with many generic answers such as durable and malleable also seen.

Question 1 (a)(iii) Generally well answered, however, confusions between 'opaque' and 'transparent' were observed. Most candidates responded with 'printability', 'absorbent' and 'flexible'. A lot of incorrect answers saying 'lightweight', 'thin', and 'soft'.

Question 1 (a)(iv) Overall candidates answered this well with most saying 'hard', 'tough', 'heat resistant'. Most incorrect answers consisting of 'durable', 'waterproof', 'light', 'lightweight', 'dense' and 'doesn't splinter'.

Question 1 (b)(i) A generally well answered question with most 2 mark responses being awarded for discussing thermal conductivity and the ability to cook food. Quite a few candidates referred to a high melting point but then incorrectly justified this by saying the pan would not melt. Many candidates answered that the pan would not rust or corrode in water or that food would not stick to the pan.

Question 1 (b)(ii) The first of the maths based questions. Many candidates were able to convert kg into grams and understood how to find a percentage. When answered incorrectly it was because there was a misconception that 3kg was 300g rather than 3000g.

Question 2 (a) The majority of candidates were able to state wool / sheep's wool however, some candidates misunderstood the word fibre and just wrote the animal – sheep or they mistook it for plant fibre – cotton / cotton wool or they wrote the word fur or sheep fur which was also seen.

Question 2 (b) Biofuels being renewable and not running out was a frequently seen answer – quite a few candidates understood it was sustainable but justified the sustainable by saying it meant 'no pollution', being 'environmentally friendly' or 'giving off less greenhouse gasses. Candidates also thought it meant the vehicles would be 'faster / cheaper' and very few could explain carbon neutral successfully.

Question 2 (c) Most correct candidates were responding either about adding 'render / colours', '3D views of the designs', and 'outputting the designs to CNC machines'. Very commonly candidates identified the CAD could be used in edited/modified designs but many candidates seemed to confuse CAD with CAM and talked about cutting out multiple sheep or the speed and accuracy. Many candidates also confused CAD with AI and discussed it involving no human error as the computer does it for you.

Question 2 (d) (i) Those candidates who understood the question were able to work out the calculation and were awarded 2 marks. The candidates needed to understand how to work out a percentage and it was evident that some did not have this knowledge. Overall answered well, most common incorrect answer was 30 for both amounts.

Question 2 d (ii) The vast majority of candidates demonstrated that they knew what bar graphs were and how to draw them accurately, but some candidates drew the bar graphs for the raw number of votes they had worked out in the previous question, rather than the percentages. Where it was incorrect candidates had often transferred the 45 and 15 from the previous question.

Question 3 (a) This question presented much more of a challenge than it should have and very few candidates were correctly able to identify the pulley as a v belt.

Question 3 (b) Most candidates were able to identify that aluminium wouldn't rust, some were able to gain the extra mark because they understood that it was a non-ferrous metal /did not contain iron. Lightweight and not weighing down the boat was also a common correct answer.

Question 3 (c) Overall answered well by most candidates. Answers were very dependent on whether candidates were able to rearrange a formula. Some used the triangle method successfully and also understood how to use the ratio. A common mistake resulted in the answer 12000, or 333 as an ECF where candidates had not transposed the formula correctly.

Question 3 (d) A generally well answered question, with most referring to the need for sunlight and the impact on the boat of clouds / darkness. Those who only received one mark, usually didn't provide a justification linked to the model boat.

Question 3 (e) Candidates generally performed well on this question, particularly when discussing balsa wood's lightweight nature and its ability to float or not sink. Many candidates earned marks by focusing on these points. Some candidates also correctly identified that balsa wood is soft and easy to cut, although there were misconceptions with some stating it is strong and durable. Confusion arose when some mistook the model boat for a real one, attributing characteristics like strength, robustness, seaworthiness, and durability.

Question 4 (a) This question was largely unsuccessfully attempted, many candidates did not know what a conductive ink is; many confusing it with thermochromic dyes or inks. The most common correct answer related to being used to draw circuits, whether with a pen or via a printer. The better answers stated that conductive inks can be used to replace wires and could be used in restricted spaces. Some candidates made reference to how this question links to the previous question and wrote about how the inks could be used on the balsa wood boat. Candidates very commonly offered inks for aesthetic reasons on packaging and on the external surfaces of products.

Question 4 (b) Generally well answered with many candidates offering 3.6g without any working out shown but some different versions of calculations also seen, still arriving at the correct answer. Some conversion errors were seen, reducing marks awarded.

Question 4 (c) Candidates frequently talked about recycling or reusing parts and materials to save landfill. Some referenced a life cycle assessment along with references to carbon footprint. However, the term "new and emerging technologies" confused some candidates, leading them to discuss CAD/CAM and prototyping as ways to minimise material impact. Many candidates were repetitive in the points that they made and effectively reworded their answer given numerous times. Most candidates gained some credit for their responses.

Question 5 (a) Candidates generally answered this question well, with many achieving higher marks by including details such as additional scissor pouches and adjustable waist fastenings.

A significant number of responses included detailed notes and sketches that addressed these specification points, often warranting full marks. The most difficult mark to achieve on this question was 'to fit a variety of waist sizes'. Here it is important that a candidate uses the actual data given in the question and uses it within their answer.

Question 5 (b) The vast majority of candidates discussed the product showing fruit – some were able to clarify why this was beneficial often repeating the question in the answer. There were a large number of the same incorrect answers about the fruit being able to be cleaned, danger of being swallowed or bitten into as it was wood or that the Velcro allowed the toy to be reused which did not answer the 'encourage healthy eating part'. Many candidates thought that giving a child a knife would lead them to violence also or that they would cut themselves.

Question 6 (a) 'Creating a washed-out effect' and 'makes the fabric softer' were common answers but often lacked the explanation point and so only received 1 mark. It was clear the majority of candidates didn't understand what bio-stoning was and it was common for a candidate to incorrectly state that it kept the colour in the denim.

Question 6 (b) Candidates either were familiar with this process or they were not. Some also incorrectly discussed a stitched method when the question was asking for a fused method. A good range of diagrams and notes were provided by the higher level learners clearly showing that they were familiar with the technique. It should be noted here that for a candidate to receive full marks notes and sketches need to be used as stated in the question.

Question 6 (c) In general this was not answered very well – many candidates had little understanding about what a twill weave was or of its physical characteristics.

Question 6 (d) While there was a wide variety of responses, most candidates could name a method but few provided sufficient explanation to earn additional marks.

Question 7 (a) Many candidates gave the correct answer of boning, ribbing was less frequently seen.

Question 7 (b) Many correct answers were given saying it was flexible so could be bent into shape. Many also knew that non-woven fabric was porous, breathable and translucent. There were some very good answers to this question with candidates being able to apply the working properties to the product in context, discussing how these impacted on the plants inside the tunnel.

Question 7 (c) Most candidates engaged with this question, resulting in a large number of full mark answers. In many instances where the question was answered incorrectly, candidates were still able to secure 1 or 2 marks for showing correct working out. Where they did not get full marks, candidates generally picked up marks for identifying that 244 cm × 122 cm = 29768cm. Fewer candidates managed to calculate the length of the semi-circle as 28.278 cm and the total length of the part required as 60.278 cm. Many students who gained fewer marks confused the circumference and area often adding an area to a length. Some did not halve the circumference and others did not multiply the result by 30 to find the area of the curved section.

Question 7 (d) Again, there was some very good answers to this question where candidates could explain in some detail why the quick opening and closing of the tunnel was suitable for the product's use.

Question 8 (a) Most marks were awarded for discussing the easy care and durable nature of acrylic fibres. If a candidate did not perform well it was often because they were discussing the aesthetics of the jumper and not the benefits of the acrylic fibres.

Question 8 (b) Many generic answers were given e.g. easy/quick to manufacture, cheap/saves money without a good explanation. 'Readily available' was the only really

common answer seen that scored 1 mark – it was clear that the majority of candidates did not really understand the question.

Question 8 (c) **I**t was clear the vast majority of candidates did not understand what sub-assembly was. Where marks were awarded it was often for the point that the jumper can be used by different schools if different badges were added.

Question 8 (d) Candidates in general tended to ignore the question which clearly states 'cost factors' and instead explained the table shown at the start of the question more generally. The majority of the time response were about where it had come from and the fact that this would be harmful to the environment not looking at the value of the fibre.
Bulk buying was common as was import taxes, shipping costs and environmental impact of transportation was almost always mentioned.

Overall, a very varied and poor set of responses and sadly many candidates who attempted the question did not make clear reference to the cost factors included in the question.

Paper Summary
Overall, the paper provided questions that gave candidates the opportunities to demonstrate their knowledge of Design and Technology via a range different context based questions, including several maths based questions but in a DT context. The paper offered a range of differentiated questions that candidates could answer in differing degrees and a full range of marks were observed across the whole cohort.