

Textile Treasures: Designing for Purpose

Learning objective: To understand the properties of different fabrics and apply this knowledge to design a functional textile product that meets a specific user need.

Read each question carefully. Consider the physical properties of materials, such as durability, absorbency, and flexibility, before writing your answers. Use your knowledge of textile construction techniques to justify your design choices.

Max is planning to create a protective carry-case for his precious collection of maths compasses and protractors. He needs a material that is robust enough to prevent sharp points from piercing through, but flexible enough to fold easily. Zara suggests that he considers the difference between natural fibres, like cotton, and synthetic materials, like polyester, when choosing his fabric.

Word bank: durability · absorbency · tensile strength · synthetic · natural fibres · stitch · template · functionality · seam allowance

1. Max is deciding between using thin cotton or heavy-duty canvas for his carry-case. Compare and contrast these two materials in terms of their durability and suitability for his project. (3 marks)

2. Explain why 'absorbency' might be a disadvantage if Max chooses a fabric to protect his metal maths equipment from moisture and rust. (2 marks)

3. When joining two pieces of fabric together, why is it essential to leave a 'seam allowance' before sewing? (2 marks)

4. If Max wants to add a fastening to his case, suggest one textile-based closure (other than a zip) and justify why it would be effective for a child using it in a classroom. (3 marks)

5. What might happen if Max chooses a fabric with very low tensile strength for a bag intended to carry heavy objects? Explain your reasoning. (2 marks)

6. Justify your choice of a specific pattern or colour for the case. How could the aesthetic design influence the user's experience or help keep the equipment organised? (2 marks)

Draw: Sketch a labelled design for Max's carry-case. Include your chosen fabric type, the method of closure, and at least two decorative or functional features (such as internal pockets or reinforced corners).



Extension challenge: Imagine you are designing a high-visibility, waterproof jacket for Finn the dolphin to wear during his ocean mapping expeditions. Research and list three specific material properties required for this environment, then write a short paragraph explaining how you would ensure the garment remains comfortable for a swimmer while maintaining its protective function.