

Prototyping: From Concept to Creation with Kit the Fox

Learning objective: To understand the purpose of iterative design and how prototyping allows us to refine and improve functional products.

Read each question carefully and apply your design technology knowledge. Use your understanding of materials, testing, and feedback to provide detailed, reasoned responses.

Kit the Fox is designing a new, collapsible storage organiser for a school desk. A prototype is not the final product; it is a simplified model used to test ideas, identify flaws, and ensure the design meets the user's needs before manufacturing the final version.

Word bank: Iteration · Functional · Ergonomics · Feedback · Prototype · Modification · Aesthetics · Fit-for-purpose

1. Kit decides to build his first prototype out of recycled cardboard rather than the final plastic material. Justify why using low-cost materials is a vital step in the design process. (2 marks)

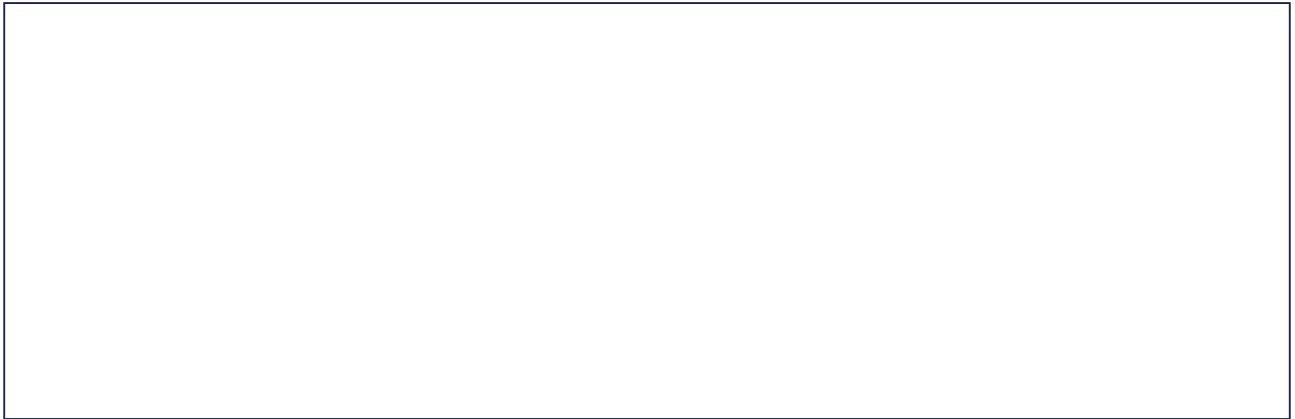
2. Explain why 'feedback' from a potential user is more valuable than Kit simply looking at his own design. How might this alter his future iterations? (3 marks)

3. If a prototype fails to hold the weight of the items it is designed to store, what technical modifications could Kit investigate? Consider the stability and structural integrity. (2 marks)

4. Compare and contrast the importance of 'aesthetics' (how it looks) against 'ergonomics' (how easy it is to use). Which should be prioritised in a functional prototype and why? (3 marks)

5. What might happen if a designer skips the prototyping stage and goes straight to mass production? Describe two potential risks. (2 marks)

Draw: Sketch a labelled 'exploded view' of your own desk organiser prototype. Use arrows to point out the specific design features that make it 'fit-for-purpose'.



Extension challenge: Imagine your prototype was tested by a Year 1 pupil. Write a brief reflection explaining how you would adapt your design to make it safer and more accessible for a younger user. How would your material choices change?