

Design Technology: The Power of Prototyping

Learning objective: To demonstrate understanding of the prototyping process, including testing, refining, and evaluating design ideas.

Read each question carefully. Use your knowledge of the design process to explain how we move from an initial idea to a finished product. Write your answers clearly in the spaces provided.

Max the monkey has been tasked with designing a new storage box for his collection of maths equipment. He has created a 'prototype' to test his idea before building the final version out of wood. A prototype is a simple, early model of an idea. By testing it, Max can spot mistakes and make improvements, which helps him save time and resources.

Word bank: Prototype · Evaluate · Modification · Refine · Functionality · Materials · Design brief

1. 1. Why is it important for a designer to create a prototype before making a final product? (2 marks) (2 marks)

2. 2. Max discovers his cardboard prototype is too weak to hold his heavy maths blocks. What is this process of testing called? (1 mark) (1 mark)

3. 3. List two different materials you might use to create a quick, low-cost prototype. (2 marks) (2 marks)

4. 4. If Max decides to change the shape of his box after testing, what is the technical term for this change? (1 mark) (1 mark)

5. 5. Explain the difference between 'form' (how it looks) and 'function' (how it works) when evaluating a prototype. (4 marks) (4 marks)

6. 6. Imagine Max is designing a new pencil case. Describe three steps he should take to test if his prototype is successful. (6 marks) (6 marks)

7. 7. Extended Writing: You have been asked to design a new school lunchbox. Write a paragraph explaining why you would need to test your prototype with a partner. Include what feedback you might ask for and how you would use that feedback to improve your final design. (9 marks) (9 marks)

Draw: In the box below, draw a simple prototype of a sturdy desk tidy. Label two features that you would need to test for strength or stability.



Extension challenge: Total: /25