

# 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 math 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)**

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

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

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**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)**

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

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**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)**

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**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)**

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**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*