

Max's Prototyping Masterclass

Learning objective: To understand the purpose of prototyping in the design process and how iterative testing leads to improved product functionality.

Join Max the monkey as he tackles his latest invention! Answer these 10 questions to prove you are a prototyping expert. Read the questions carefully and select the best answer or provide a short explanation.

Answer Key: 1. A (A first model); 2. True; 3. Modification; 4. B (To identify flaws); 5. False; 6. Feedback; 7. Iterative; 8. C (Cardboard and tape); 9. True; 10. To save time and resources before making the final product.

Word bank: Prototype · Iterative · Design · Feedback · Functionality · Modification · Evaluation · Testing

1. 1. What is the primary definition of a prototype? A) A final product ready for sale, B) A rough, early model of an idea*, C) A digital drawing, D) A finished instruction manual. (1 mark)

2. 2. True or False: Prototyping helps designers identify potential problems before creating the final version. (1 mark)

3. 3. When you make a small change to your design after testing, this is known as a: (Fill in the blank: M _ _ _ _ _) (1 mark)

4. 4. Why is testing a prototype important? A) To make it look pretty, B) To see if it works as intended*, C) To hide the design from others, D) To increase the price. (1 mark)

5. 5. True or False: You should only ever make one prototype, and it must be perfect the first time. (1 mark)

6. 6. What do we call the information or opinions we get from others after they have used our prototype? (One word) (1 mark)

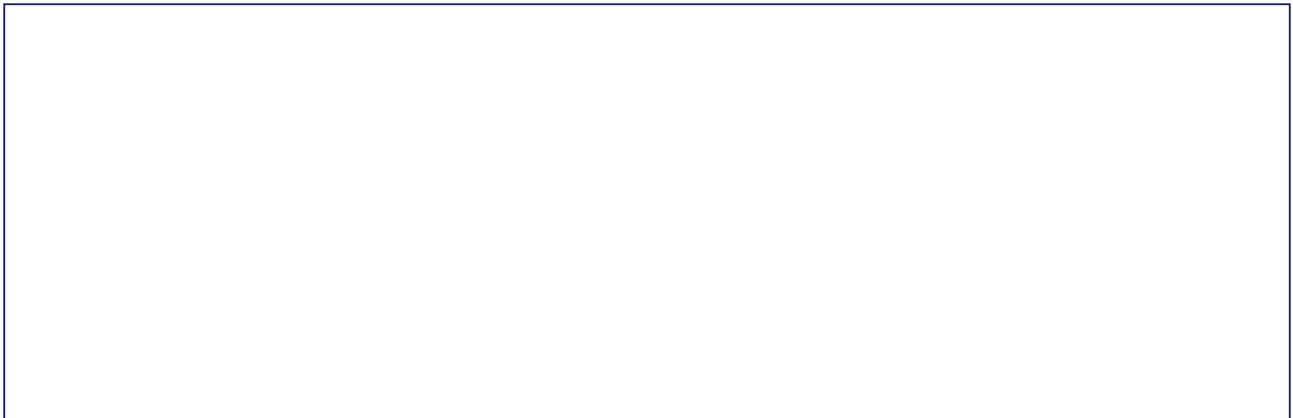
7. 7. The process of constantly refining and improving a design through repeated testing is called an _____ process. (1 mark)

8. 8. Which of these materials is most common for creating a low-cost, initial prototype? A) Solid steel, B) Polished marble, C) Cardboard and masking tape*, D) Pure gold. (1 mark)

9. 9. True or False: Prototyping is a key part of the 'Design, Make, Evaluate' cycle. (1 mark)

10. 10. Why might a designer choose to use cheap materials for their first prototype instead of expensive ones? (1 mark)

Draw: Max the monkey wants to build a mechanical banana-peeler! Sketch a 'Mark 1' prototype of his machine using simple shapes. Label the parts you would need to test first to see if it actually works.



Extension challenge: Greater Depth Challenge: 1) Explain why a designer might intentionally create a prototype that they know will fail. 2) Compare and contrast a 'low-fidelity' prototype (like a cardboard sketch) with a 'high-fidelity' prototype (a working model). 3) Justify your answer: If your prototype exceeds the budget of £50.00, how might you modify your design without losing its functionality? 4) What might happen if a team skips the prototyping stage entirely before manufacturing a product? 5) How does gathering feedback from a diverse group of users improve the final design? 6) If you were designing a sustainable lunchbox, what three things would you test on your prototype to ensure it is fit for purpose?