

Design Technology: Mastering the Prototype

Learning objective: To understand the purpose of prototyping in the design process and how to test and refine a product idea.

Read the questions carefully and use your knowledge of the design process to provide detailed answers. Remember, in Design Technology, a prototype is a 'first draft' of your invention!

Max the monkey is designing a new fruit-sorting machine for the jungle community. Before he builds the final version out of expensive metal, he creates a prototype using cardboard, string, and tape to see if his mechanism actually works.

Word bank: Prototype · Iterative · Evaluation · Materials · Functionality · User feedback · Refinement

1. Max is using cardboard and tape to build his model. Why is it a good idea for a designer to use cheap or recycled materials for their first prototype? (2 marks)

2. If Max discovers that his prototype tips over when he adds the fruit, what is the 'iterative' process he should follow to fix this problem? (2 marks)

3. Explain the difference between a 'prototype' and the 'final product'. (2 marks)

4. Why is it important to ask a friend to test your prototype before you finish your final design? (2 marks)

5. Max's prototype cost £2.50 to make, but the final version will cost £15.00. Why is building a prototype a smart way to save money? (2 marks)

Draw: Imagine you are helping Kit the fox build a prototype of a solar-powered flashlight. Draw a labelled diagram of your prototype, showing which materials you would use for the casing and how you would attach the light source.



Extension challenge: Write a short 'evaluation' paragraph explaining one thing you would change about your solar flashlight prototype to make it more durable for outdoor use.