

Max's Mechanical Invention Design Lab

Learning objective: To design a functional product using a mechanical system (levers, linkages, or cams) to create movement.

Max the monkey is helping you design a new invention! Read the questions below and use your knowledge of mechanisms to plan your project. Think about how your mechanism will move and which materials you will need to keep it sturdy.

Word bank: pivot · lever · linkage · cam · follower · input · output · strength · stability · mechanism

1. The Invention Idea: What is your product, and what movement do you want it to make (e.g., a spinning wheel, a nodding head, or a sliding door)? (2 marks)

2. Choosing the Mechanism: Which mechanism will you use to create this movement? Explain why you chose this specific type. (3 marks)

3. Materials List: List the materials you need to build your prototype. Remember to consider the cost if you have a budget of £5.00 for your components. (2 marks)

4. Step-by-Step Build: Describe the order in which you will assemble your mechanism. How will you ensure your parts connect securely? (4 marks)

5. Evaluating Success: How will you test if your mechanism works correctly? What will you do if the movement is stiff or 'sticks'? (3 marks)

Extension challenge: Imagine your invention is a commercial product. If it costs £2.50 to make, calculate the profit you would make if you sold it for £4.75. If you wanted to improve the design further, what additional mechanism could you add to make it more complex?