

Max's Mechanical Invention Record

Learning objective: To design and evaluate a simple mechanism using levers or pulleys to solve a practical problem.

Max the monkey has a maths puzzle! He needs to move heavy fruit to the top of his tree. Use this record sheet to plan your design. Think about how your mechanism will make the work easier. Fill in each section clearly, using your best scientific vocabulary.

Word bank: pivot · load · effort · fulcrum · pulley · lever · mechanism · force · lifting · structure

1. The Problem: Describe the object you need to move and why it is difficult to lift without a machine. (2 marks)

2. The Mechanism: Will you use a lever or a pulley? Explain how your chosen mechanism will help to reduce the effort needed. (3 marks)

3. Materials List: List the items you will use to build your prototype (e.g., string, cardboard, wooden dowels, tape). (2 marks)

4. Step-by-Step Plan: Briefly outline the order you will follow to construct your mechanism. (4 marks)

5. Evaluation: If you were to build this again, what is one thing you could change to make the mechanism work more smoothly? (2 marks)

Extension challenge: Calculate the total cost of your materials if string costs 50p per metre, a cardboard box costs £1.20, and a wooden dowel costs 80p. If you have a budget of £5.00, how much change would you have?