

Max's Mechanism Design Studio

Learning objective: To design a functional mechanism using levers and linkages, applying knowledge of pivots and forces.

Max the monkey is planning to build a mechanical contraption for the playground! Use this design sheet to plan your own mechanism. Think about how your chosen lever or linkage will move and what forces you will need to apply to make it work. Ensure your labels are precise and use technical vocabulary to explain your design choices.

Word bank: pivot · lever · linkage · fulcrum · force · mechanism · stiff · flexible · clockwise · anticlockwise

1. Design Brief: Describe your mechanism. What does it do and what is the purpose of the movement? (3 marks)

2. Component List: List the materials you will need to build your prototype and justify why these materials are suitable. (3 marks)

3. The Pivot Point: Explain where you will place your fulcrum and how this affects the amount of force needed to operate the lever. (4 marks)

4. Step-by-Step Construction: Outline the sequence of assembly. Why is the order of your steps important for the mechanism to function correctly? (4 marks)

5. Evaluation: Explain why you chose this specific type of linkage. Compare its movement to a simple lever. (4 marks)

6. Predicting Outcomes: What might happen if the pivot point was made from a material that was too flexible? Justify your answer. (3 marks)

Extension challenge: Creative Challenge: Imagine your mechanism is part of a larger machine. Draw a diagram of how you could connect a second mechanism to your first one. Explain the relationship between the two parts: how does movement in the first mechanism trigger movement in the second?