Max’s Mechanical Workshop: Levers and Pulleys

Learning objective: To understand how levers and pulleys function as simple machines to move heavy objects with less effort.

Use your knowledge of mechanics to complete the diagrams below. Read the prompts carefully and ensure your labels clearly point to the correct components.

Draw: Draw two separate mechanical scenes. Scene 1: A simple lever. Draw a plank resting on a triangular block (the fulcrum) with a heavy rock (the load) on one end and Max the monkey pushing down on the other end (the effort). Scene 2: A fixed pulley system. Draw a single wheel attached to a wooden beam above, with a rope looped over it. On one end of the rope, draw a bucket of apples; on the other end, show Max pulling down on the rope to lift the bucket. Use clean, clear lines and add labels using the word bank provided.

Label words: Load · Effort · Fulcrum · Fixed Pulley · Rope · Pivot

Steps:

1. In the lever diagram, what is the specific name for the point that the beam pivots on?
2. Explain why using a pulley makes it easier for Max to lift a heavy crate than picking it up by hand.
3. Label the 'Effort' and the 'Load' on your drawing of the lever.
4. If Max moves the fulcrum closer to the load, will he need to use more or less force to lift it?

5. Name one real-life object you have seen that uses a pulley system.