

Design Technology: Mastering Mechanisms with Max the Monkey

Learning objective: To understand, identify, and apply knowledge of mechanical systems including levers, linkages, and cams to create controlled movement.

Use these flashcards to test your knowledge of how mechanisms work. Read the front of the card, attempt to answer, and then check your understanding against the provided definition.

What is a mechanism?

A mechanism is a system of parts working together to change an input motion or force into a different output motion or force.

Define a lever.

A lever is a rigid bar that rests on a pivot point, used to help move or lift a heavy load with less effort.

What is the specific name for the pivot point in a lever system?

The fulcrum.

Explain the difference between linear and rotary motion.

Linear motion moves in a straight line, whereas rotary motion moves in a circle or around an axis.

What is a linkage?

A linkage is a series of levers connected together to transfer motion from one part of a mechanism to another.

Describe the function of a cam.

A cam is a rotating, non-circular shape that converts rotary motion into a specific pattern of movement for a follower.

What is a follower?

The follower is the component that rests against the cam and moves up and down as the cam rotates.

What is oscillating motion?

Oscillation is a repetitive movement that swings or moves back and forth in an arc, like a pendulum.

Why do designers use different cam shapes (e.g., pear, circular, snail)?

Different cam shapes determine the timing and speed of the follower's movement, allowing for complex mechanical patterns.

What happens to the mechanical advantage if you move the fulcrum closer to the load?

The mechanical advantage increases, making it easier to lift the load, though it must be moved through a greater distance.