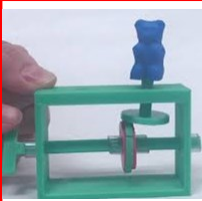


Key Knowledge

The purpose of a **cam** is to turn one form of movement into another in a machine, such as a car engine.



A car engine has **rotational** and **linear** (vertical) movement due to the way the cams are shaped and arranged—as the camshaft rotates, the pistons move up and down vertically in a linear movement.



When a **circular cam** is placed at the edge of another circular cam at 90° it will rotate the movement through 90°, commonly used in simple spinning toys.



Non-circular cams are used to create different types of linear movement. The shape of these non-circular cams will influence how smoothly or quickly the **follower** rises and falls. If the non-circular cam is **placed directly underneath** the follower, **only linear movement** will occur. If it is placed **towards the edge**, then the follower will **rotate, as well as going up and down**. This means it is easy to create linear and rotational movement in one cam's mechanism.

Key Skills

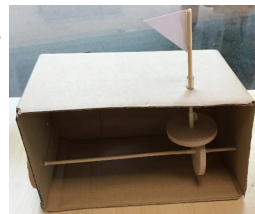
Generate ideas through research and groupwork and identify a purpose for this product:

- to draw up a **design specification**.
- to develop a clear idea of what has to be done, planning how to use **materials, equipment and processes**, and suggesting alternative methods of making if the first attempts fail.
- Select appropriate materials, tools and techniques:
- to **measure and mark out accurately**
- to **use different tools and equipment safely and accurately**.
- to **evaluate** a product against the original design specification.
- to evaluate it personally and seek evaluation from others.

To know how to incorporate the cam components into a 3D structure; measure accurately using a ruler and to **know how these measurements work in three dimensions** to make holes parallel or perpendicular (90°) to each other.

To **join a cam to a shaft/follower successfully** so it only rotates with the shaft/follower and increase the thickness of the shaft/follower with masking tape, where necessary.

To **position components** within the 3D structure, allowing for alterations if necessary.



Key Vocabulary

Understand these key words

Word	Definition
Cam	A shaped component used to turn one form of movement into another.
Rotational Movement	Spinning around the pivot point.
Pivot Point	The point around where rotational movement occurs.
Liner Movement	Up and down movement caused by a non-circular cam.
Circular Cam	A round cam.
Non-circular Cam	Any cam that is not round.
Follower	The component that is moved up and down or rotated by the cam.
Slide	The housing (case) for the follower that allows it to move.