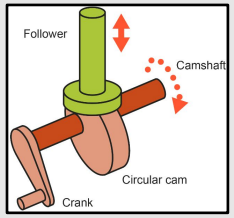
DESIGN AND TECHNOLOGY Year 7 Mechanical Systems and Movement

1. Mechanism is a device that changes an input motion into a different output motion.
Lever a mechanism that moves around a fixed point **(a pivot).**
There are four types of motion in mechanical systems

Motion	Definition	Example
Linear motion 	Moves in a straight line in one direction only.	
Reciprocating motion 	Moves back and forth or up and down along a straight line.	
Oscillating motion 	Moves back and forth along a curved line.	
Rotary motion 	Rotates around a central axi.s	

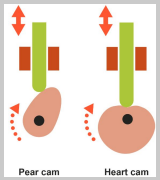
2. Cam and followers
There are three main types of motion at work in a cam and follower mechanism.

- **Rotary**
- **Reciprocating**
- **Oscillating**

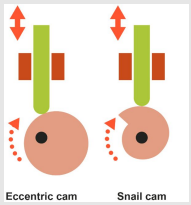


When a cam rotates, it **lifts** and **lowers** the **follower**
The lift is known as the **rise.**
When it lowers it is known as the **fall.**

3. Cams

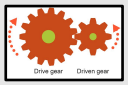
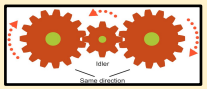


Eccentric cam
An eccentric cam is also known as a circular cam. It has a steady rise and fall with little dwell.
Snail cam
A snail cam has a steady rise followed by a sudden fall. It has a long dwell.



Pear cam
A pear cam has a rise and fall for half of the rotation followed by a long dwell
Heart-shaped cam
A heart-shaped cam has
smooth and gentle rise and fall. It has no dwell.

4. Gear trains, pulleys and drive mechanisms

A **gear** is a toothed cog wheel that is fixed to a shaft which rotates	**How is a gear train formed?** When the teeth of two or more gears are interlocked (meshed together) they form a **gear train.**	
A simple gear train	A **simple gear train** is where two spur gears mesh together	
An Idler gear	An **idler gear** allows the drive gear and the driven gear to rotate in the same direction.	

4. Gear trains, pulleys and drive mechanisms continued

Pulley and belt systems	Pulleys are wheels with a grooved rim which a belt passes around..	Belts take the drive from one pulley to another. 
Chain and sprocket	Chains are used to transmit motion from the drive shaft to the driven shaft.	Toothed wheels called sprockets interlock with chains 

Task
1. Learn/cover/write and self-check the different types of motion in mechanical systems in **section 1.**
2. Learn /cover/write and self-mark the names of a cam and follower mechanism in **section 2.**
3. Learn/cover/write a description of each cam in **section 3.**
4. Learn/cover/write description mechanism in **section 4**