



# DESIGN TECHNOLOGY KNOWLEDGE ORGANISER

## Topic: Cam Toy Project



YEAR 8 DT

### My Tool Box



**Bench hook** – Used to hold work in place when cutting



**Coping Saw** – Used to cut curves and internal shapes in wood.



**Cordless drill** – Used to drill and drive screws.



**Tenon Saw** – Used to cut straight lines in wood.



**Marking Gauge** – Used to mark out a parallel line on wood.

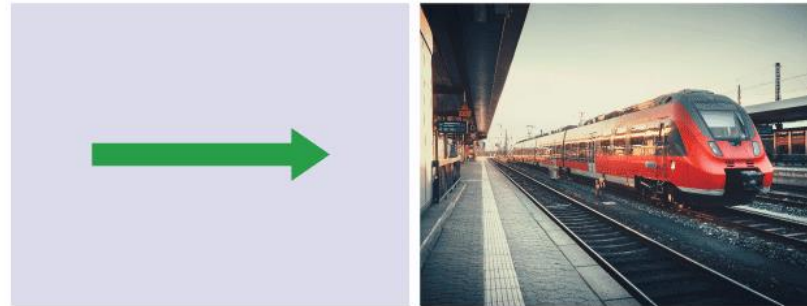


**Quick Clamp** – Used to clamp material

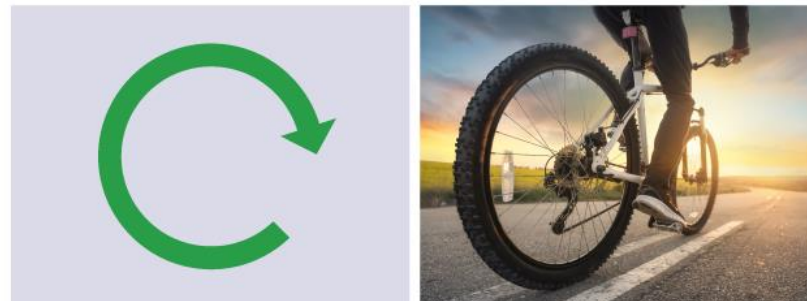
### Types of Motion

Mechanical devices require motion. The four types of motion are:

**Linear motion** moves something in a straight line, eg a train moving down a track:



**Rotary motion** is where something moves around an axis or pivot point, eg a wheel:



**Reciprocating motion** has a repeated up and down motion or back-and-forth motion, eg a piston or pump:



**Oscillating motion** has a curved backwards and forwards movement that swings on an axis or pivot point, eg a swing or a clock pendulum:



### Key Terms

**Linear Motion** - this is movement in a straight line and in one direction. One of the best examples of this is a train / locomotive. When a train runs along a track, it is in a straight line and heading in one direction.

**Rotary Motion** – this is movement following a circular path, around a fixed point. A very good example of this is a bicycle wheel. The wheel rotates around a centre point.

**Reciprocating motion** - this is a repetitive movement left to right OR up and down. A good example of this type or motion is a piston, such as found in an engine.

**Oscillating Motion** – Oscillating motion occurs when an object swings left and then right (or vice-versa), from a fixed point. A very good example of this is a classic pendulum clock

### Tasks

**Task 1:** Think of more examples of each type of motion.

**Task 2:** Draw the cam mechanism and learn the definition

**Task 3:** Create 6 questions that can be answered from the information on this knowledge organiser.

**Task 4:** Draw two tools and write what they are for.

**Task 5:** Create a quiz based on task 1, 2 or 3. Get someone to test you.

**Task 6:** Create a mind map for the information you remember and red pen anything you've forgotten.

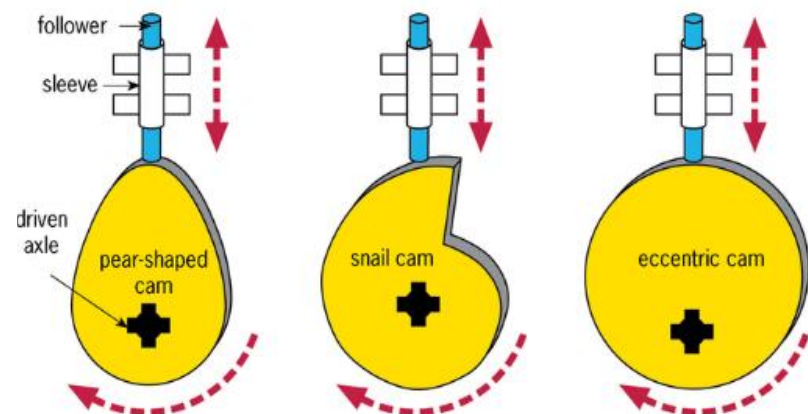
**Task 7:** Teach it. Create a task that can be used to teach some of the information from here.

### Cams and followers

A cam mechanism has two main parts:

- a cam- attached to a crankshaft, which rotates
- a follower – touches the cam and follows the shape, moving up and down

A CAM changes the input motion, which is usually rotary motion (a rotating motion), to a reciprocating motion of the follower. They are found in many machines and toys



### To go further:

Introduction technical drawing:



More information about mechanical devices:

