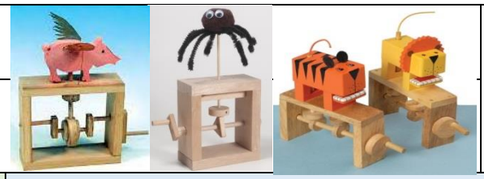
DESIGN TECHNOLOGY KNOWLEDGE ORGANISER

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.

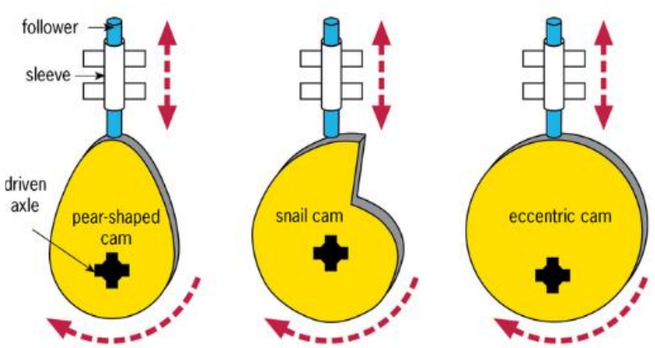
Marking Gauge – Used to mark out a parallel line on wood.

Quick Clamp – Used to clamp material

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

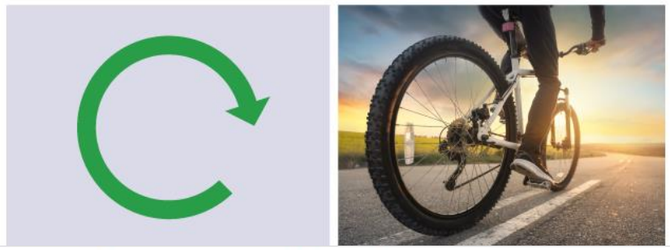


Types of Motion

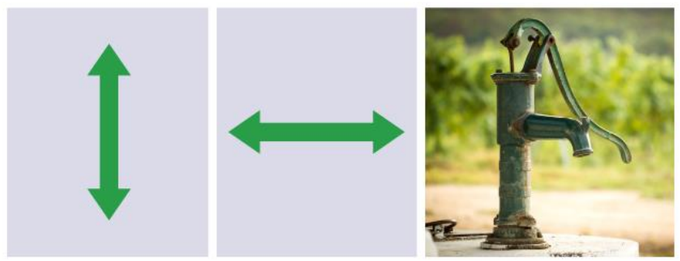
Mechanical devices require motion. The four types of motion are:

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

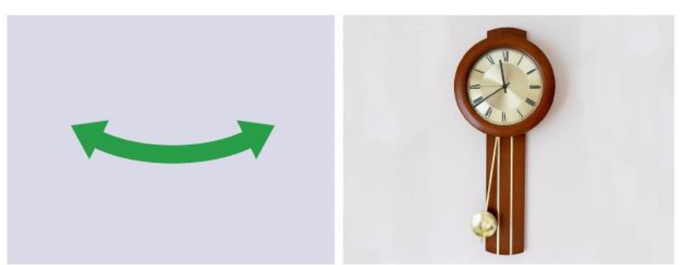
Rotary motion is where something moves around an axis or pivot point, eg a wheel:



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 vise-versa), from a fixed point. A very good example of this is a classic pendulum clock

Tasks

Task 1: Learn the tool names and their use.
Task 2: Learn the key words and the definition.
Task 3: Create 6 questions that can be answered from the information in the focused topic column.
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.

To go further:

Introduction technical drawing:

More information about mechanical devices: