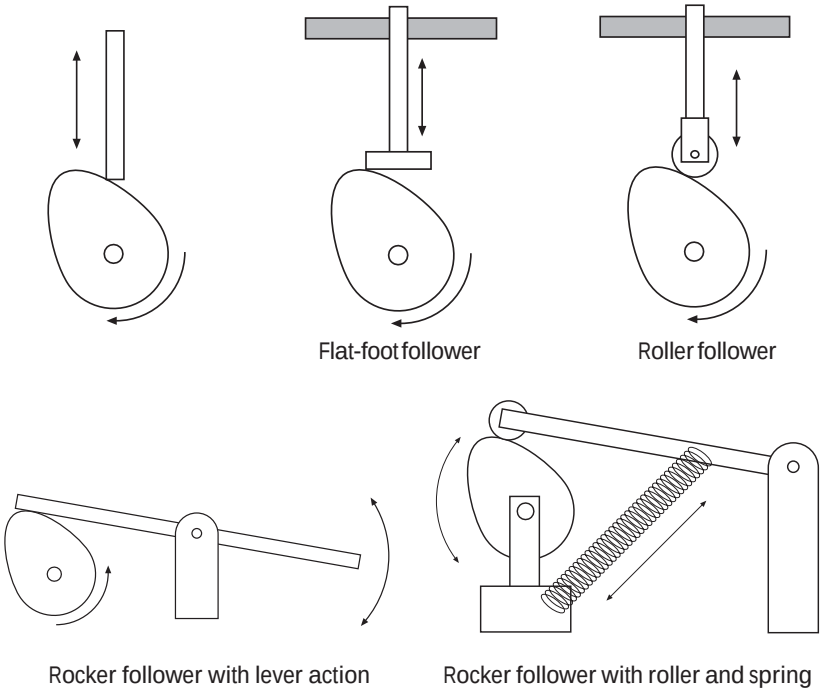
INVESTIGATING THE CAM AND CAM-FOLLOWER

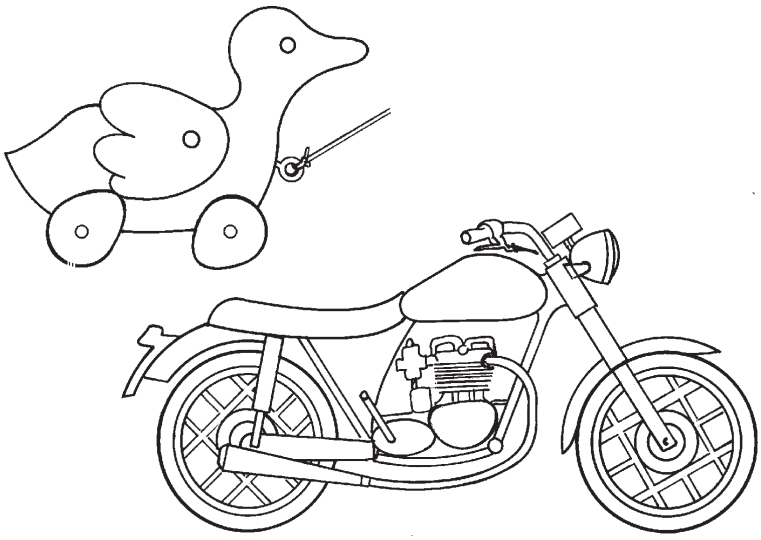
The purpose of this unit is to help you:

- Understand better the cam and cam-follower.
- Design a particular cam you might use in project work.

The cam-follower converts movement from circular to a kind of oscillatory motion. It cannot work the other way around.

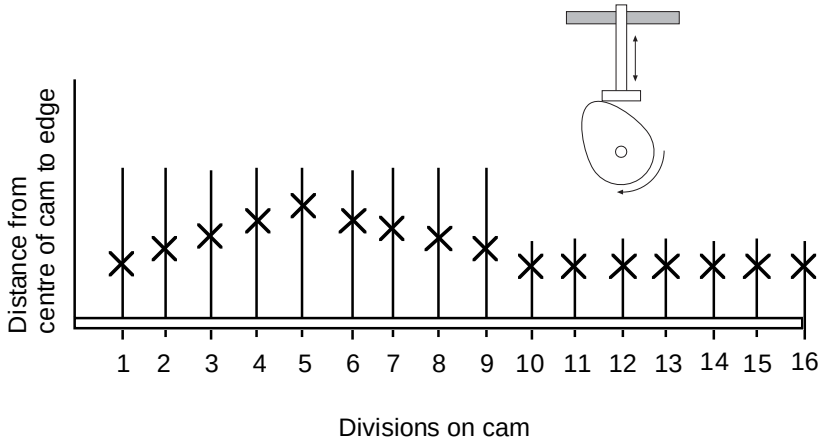


In each of these examples, there is a cam-follower mechanism. Identify what the cam and the follower does in each example.



How are the input and output movements described?

Every turn of the cam gives one cycle of the path of the follower. This cycle is therefore repeated every time the cam turns. The movement of the cam follower can be plotted on a graph.

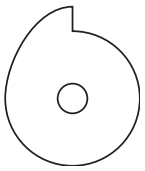


Here is a summary:

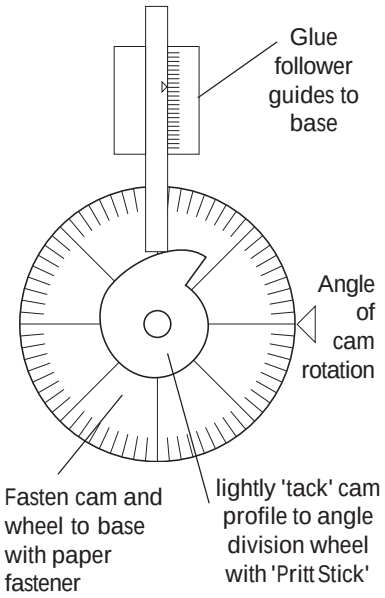
Cam	Follower
Input	Output
Rotational motion	Oscillatory motion,
Described by shape	Described by displacement graph
and	and
.....by number of turns or rotations	.....by number of 'cycles' or oscillations

ACTIVITY

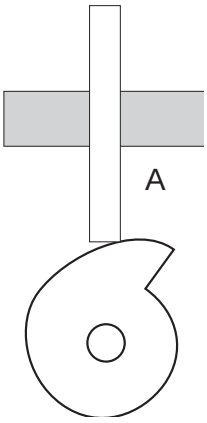
This practical investigation examines a cam shaped like this:



The investigation is carried out using cardboard engineering. First, cut out and assemble the parts from the card template Technology Study File 9. They should look like this:



1. Using the rig, rotate the cam steadily and observe the motion of the follower.



Check that:

- If you input five turns (i.e. turn the cam five times), the follower repeats its cycle five times.

- The follower drops suddenly when the cam reaches its sharp drop at A.

2. Rotate the cam. Record the angle turned through and the distance moved by the follower. Take readings about every 30°. You may need to make measurements at smaller angles near sharp points on the cam.

3. Plot a graph showing the motion of the follower as the cam rotates. The horizontal axis represents the angle the cam has turned through (in degrees). The vertical axis represents the displacement of the follower (in millimetres).