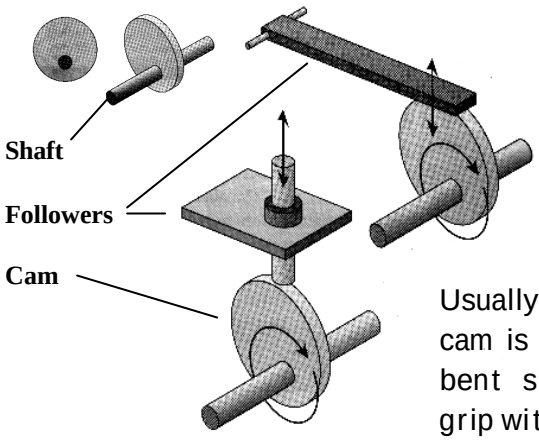
Cam Systems

Date _____

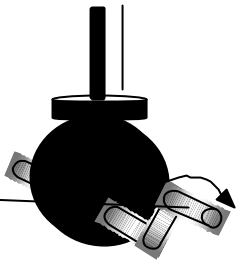
By the end of this page you will know what a cam is and how its shape can be used to make things work differently.



A cam is a disk-like shape which rotates on a shaft. As it moves around it pushes whatever is resting on top up and down.

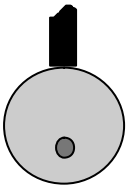
The object that rests on the top of it is called a **'follower'**.

Usually the lever used to turn a cam is called a 'crank'. This is a bent shape which is useful to grip with the fingers or hand.



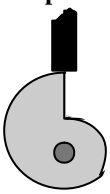
The shape of the cam gives a different output:

Eccentric cam



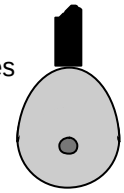
This cam makes the follower move smoothly up and down.

Drop cam



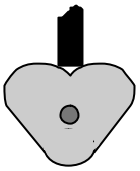
This cam gives a steep rise and sudden drop.

Pear cam



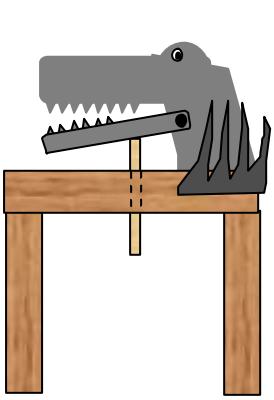
This cam gives a steep rise and fall and a short still (dwell) period.

Heart shaped cam

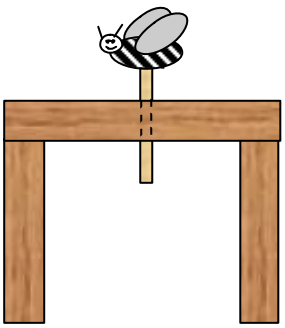


This cam gives two short bumps and steep up and down movement.

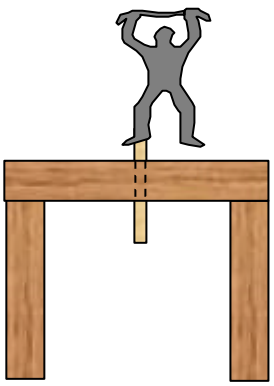
Task 1: choose the appropriate cams from above and draw them under each of the followers. You need to read the notes under each drawing to help you decide.



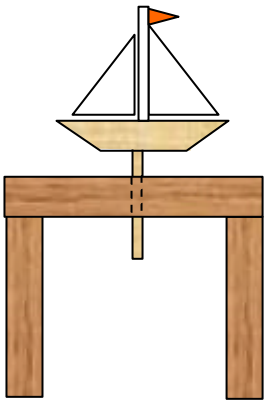
The monster wants to rise its jaw then suddenly open it as if to growl.



This bee is busy. It needs to bob quite a few times to one turn of the cam.



This football supporter wants to jump up and down.



This ship needs to ride the waves smoothly.

Task 2: a student has added a bit of marsh reed to the front of the first mechanism. Add appropriate designs to the foreground/background of the mechanisms to enhance the rest.
Extension: draw a mechanism using a cam to make an axe look like it is splitting wood, or a hammer is hitting a nail (you **could** design it to make the hammer/axe oscillate 'swing').