



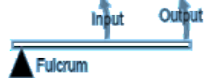



YEAR 5 DT KNOWLEDGE ORGANISER

What is a lever?

A lever is a simple machine which helps us to lift objects. It has a long arm and a fulcrum, which is where the arm pivots. The object you are lifting is called the load, and the force you apply to the arm to make the object move is called the effort. There are three types of lever

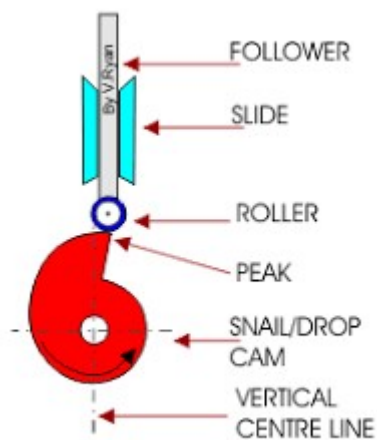
Levers – There are three classes of Levers

<p>Class One A class one lever has its input on one side of the fulcrum and its output on the other.</p>		
<p>Class Two A class two lever has its input at one end of the lever, its output in the middle and fulcrum at the other end.</p>		
<p>Class Three A class three lever has its output at one end of the lever, its fulcrum at the other with its input in the middle.</p>		

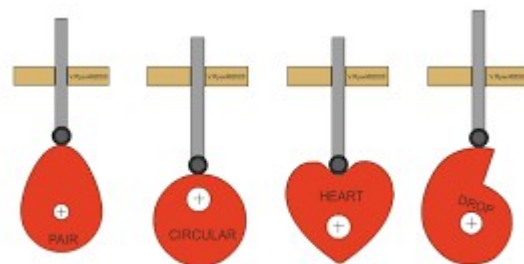
See a moving Cam -scan the QR code

What is a Cam?

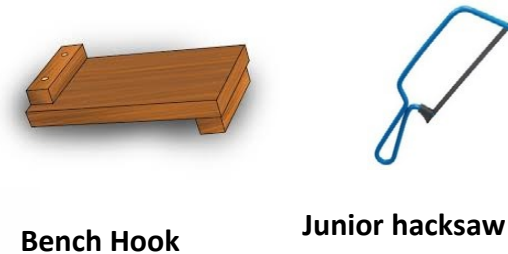
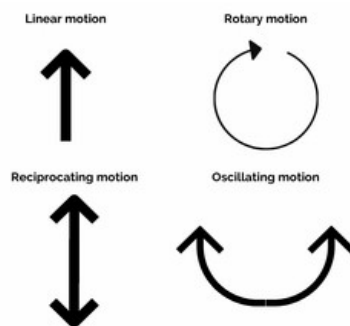
A CAM changes the input motion, which is usually rotary motion (a rotating motion), to a reciprocating motion of the follower. They are found in many machines and toys



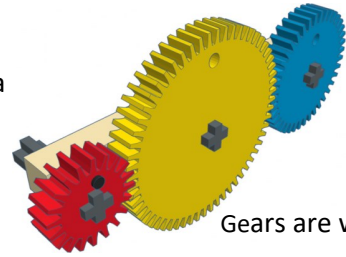
Different types of Cams?



4 types of mechanical motion



Can you find any everyday objects that use any of these mechanical motions?

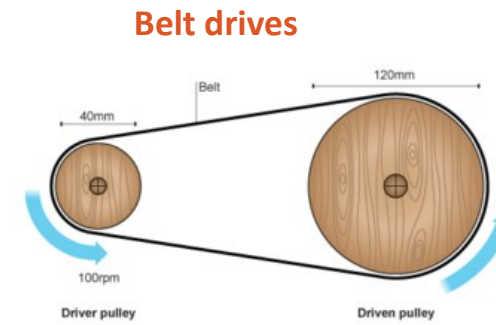


GEARS

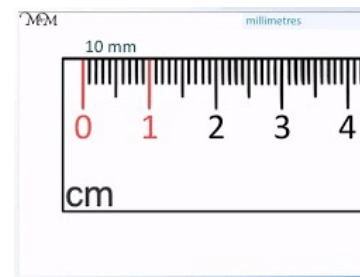
What are gears?

Gears are wheels with teeth that slot together. When one turns, the other turns too. They work in three ways:

- To increase the turning force.** Small gears turn quickly but with a smaller force, whereas large gears turn slowly with a greater force.
- To increase the speed.** If you connect a larger gear to a smaller gear, the smaller gear turns much more quickly to keep up. So on our diagram, the blue gear will be turning faster than the yellow gear, and the red gear will be turning faster than the blue one.
- To change direction.** When you join two gears together, the second one will always turn in the opposite direction. So if the red gear on our diagram is turning clockwise, the yellow gear will turn anticlockwise and the blue gear clockwise again.



Belt drives transfer movement from one rotating pulley to another, each held on a shaft. Shafts and pulley wheels can be made out of any material, whereas pulley belts are generally made from a soft, flexible material such as rubber. Grooves on the pulleys and belts help them to grip and turn

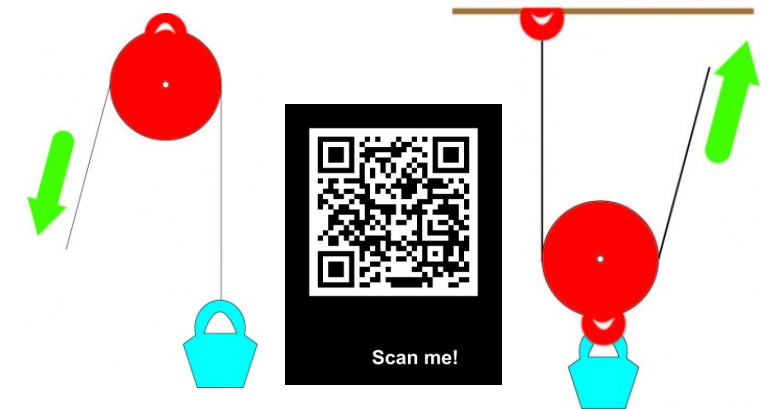


Measurement—we work in **MM** in DT.

What is a pulley?

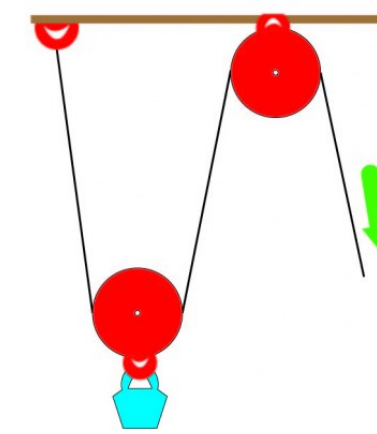
A pulley is a wheel on a fixed axle with a groove in it to guide a rope or cable. The rope or cable is attached to the object you want to lift and looped over the pulley so that the end of the rope is hanging down on the other side. The pulley changes the direction of the force needed to lift the object or the amount of force that is needed to lift an object.

Different types of pulleys

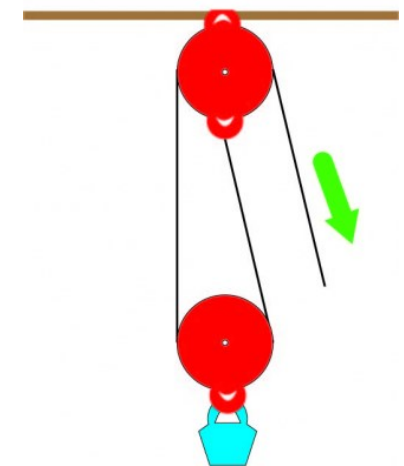


Fixed pulley

Movable pulley



Compound pulley systems



Complex pulley systems

Health & safety

