



Key Vocabulary

fulcrum	the point of support of a lever, around which it moves
hinge	a movable joint
lever	a bar or rod that moves about a pivot or fulcrum
linkage	a mechanism made by connecting together rigid links or levers
mechanism	a set of mechanical components assembled together to perform a particular task
pivot	the central point upon which a mechanism turns
counter-weight	a weight on the opposite end to the load
load	the force produced

Mechanisms - Complex Levers

What are levers?

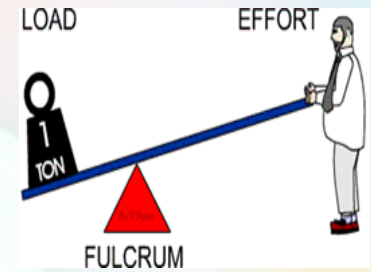
A lever is a type of mechanism that controls motion or transfers power. A lever has a stiff bar which sits upon a fulcrum or a pivot point. The lever moves on this point. When the fulcrum is in the middle, this is a 1st class lever. Examples of products including 1st class levers include: scissors, car jack, crow bar and a seesaw.

Fulcrum, Load and Effort

The object lifted by a lever is called the **load**.

The force applied to the load through the arm is called the **effort**.

The position of the fulcrum will change the relationship between the force and the load.

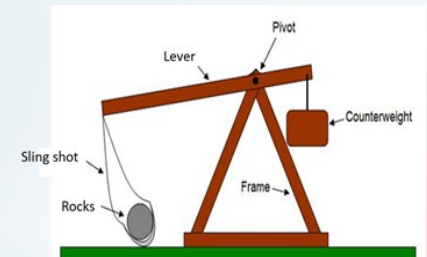


What is a trebuchet?

The trebuchet was a weapon that originated in China between the 5th and 3rd centuries BCE. It had a sling that was filled with stones.

By the 6th century, the invention had spread across Europe and Asia.

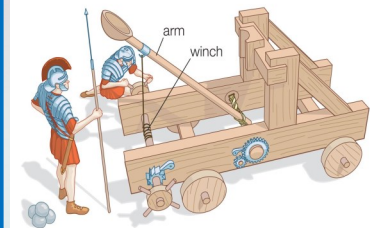
Once the counterweight was released, the lever swung upwards quickly, projecting the rocks far away.



What is a catapult?

A catapult's main function is to launch an object over a great distance, using only stored energy.

Catapults were commonly used in medieval times. They were used to throw stones and spears at enemies.



To launch a projectile, a catapult uses a lever connected via linkages to various other parts of the catapult, such as the fulcrum, base and basket.