

Paper 1: Lever Systems

Lever Systems:

Lever systems help you to move. They can increase the amount you can lift or the speed in which you can move something. You need to be able to:

- Draw the three classes of lever
- Describe the lever
- Give examples in sport

Key Words

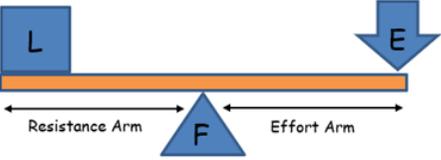
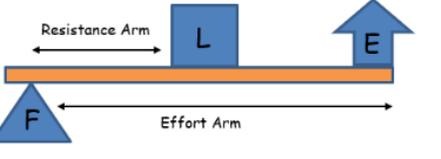
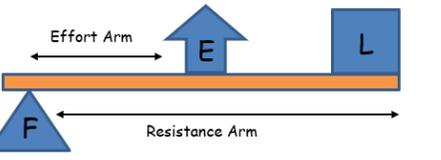
Lever: Is a bone and is shown as a straight line 

Fulcrum: Is a pivot or joint and is shown as a triangle 

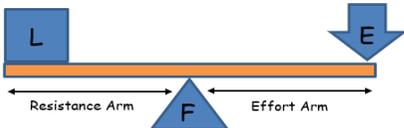
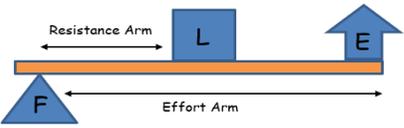
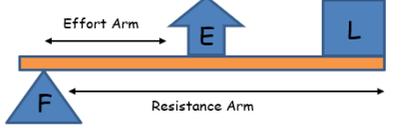
Effort: Is a force provided by muscles and is shown by an arrow 

Load: Is the weight of the body/object being moved, it is shown as a square 

Levers:

Lever	Description	Sporting example
<p>1st Class</p> 	The fulcrum is surrounded by the effort and the load	 Heading a ball
<p>2nd Class</p> 	The load is surrounded by the fulcrum and the effort	 Calf raises
<p>3rd Class Lever</p> 	The load is surrounded by the fulcrum and the effort	 Bicep curl

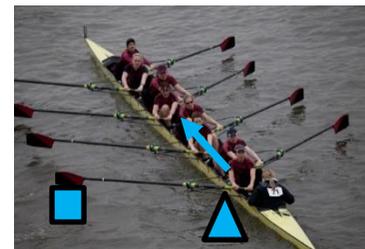
Mechanical advantages:

1 st Class Lever	Advantage
	Will vary depending on the distance of the load and the effort from the fulcrum
2 nd Class Lever	Advantage
	Able to lift heavier loads owing to its large effort arm
3 rd Class Lever	Advantage
	Provides speed and wide range of movement owing to a long resistance arm

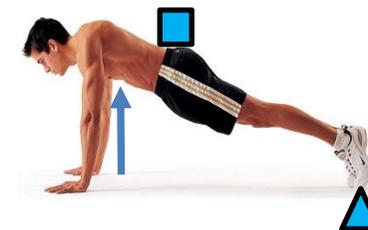
Identifying lever systems:

Each lever system can be identified by the component in the middle:

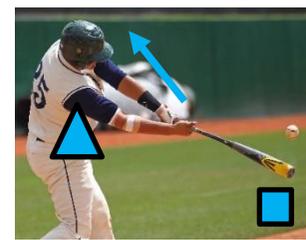
One F (fulcrum)	Two L (load)	Three E (effort)
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Effort = Biceps
Load = water
Fulcrum = hand/oars
1st class lever
(fulcrum in the middle)



Effort = Triceps
Load = Body weight
Fulcrum = Feet
2nd class lever
(load in the middle)



Effort = muscles
Load = bat/ball
Fulcrum = shoulders
3rd class lever
(effort in the middle)