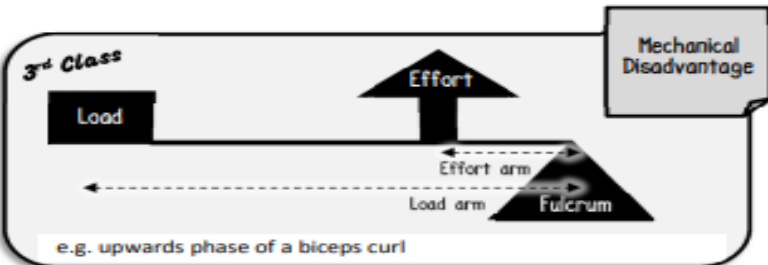
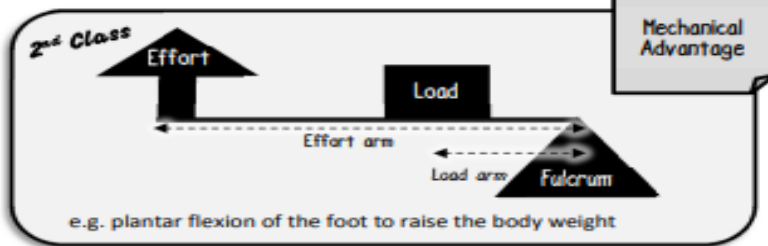
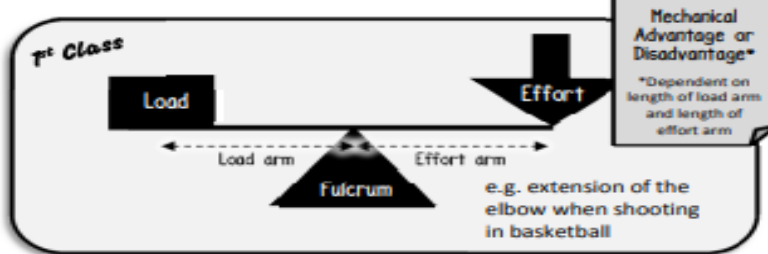










Lever Systems

- Movement at the joints occurs by one of the three classes of levers.
- Depending on the lever system, the movement is either at a mechanical advantage or disadvantage.
- A mechanical advantage allows heavy loads to be moved with minimal effort, whereas a mechanical disadvantage allows loads to be moved quickly.
- Mechanical advantage = $\text{Effort arm} \div \text{Load arm}$



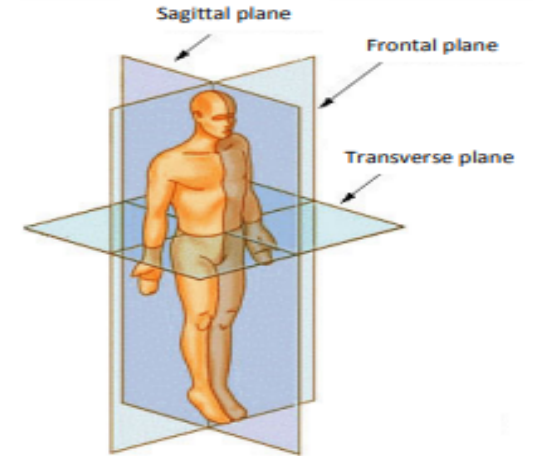
Movement Analysis (Including Planes and Axes)

Analysis of Movement

<p>Push up</p> <p>Movement at the elbow: Flexion (downwards) Extension (upwards)</p> <p>Lever system: 2nd class</p> 	<p>Cricket bowling</p> <p>Movement at the shoulder: Rotation</p> <p>Lever system: 1st class</p> 
<p>Jumping</p> <p>Movement at the ankle: Plantar flexion (take-off) Dorsiflexion (landing)</p> <p>Movement at the hip: Extension (take-off) Flexion (landing)</p> <p>Lever system at the ankle: 2nd class</p> 	<p>Running</p> <p>Movement at the knee: Flexion (backwards/bending) Extension (forwards/straightening)</p> <p>Lever system: 3rd class</p> 
<p>Front somersault</p> <p>Plane: Sagittal Axes: Transverse</p> 	<p>Discus throw</p> <p>Plane: Transverse Axis: Longitudinal</p> 
<p>Cartwheel</p> <p>Plane: Frontal Axis: Sagittal</p> 	<p>Cycling</p> <p>Plane: Sagittal Plane Axis: Transverse</p> 

Planes of Movement

Any movement at a joint occurs in one of the planes outlined below.



Axes of Rotation

Any time the body rotates, it does so around one of the three axes shown below:

