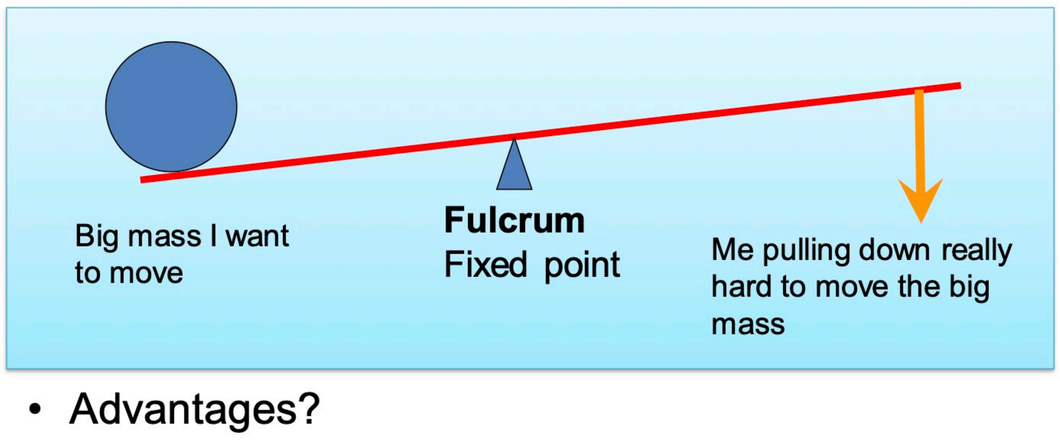
Big Levers

First Class Lever



- Advantages?

Force OR **Speed AND Range of Movement**

- It depends on where you put the pivot!
- Examples: seesaw, rowing

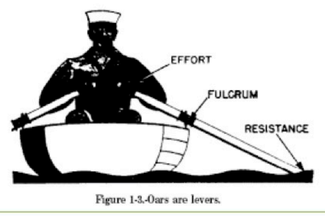


Figure 1-3.-Oars are levers.

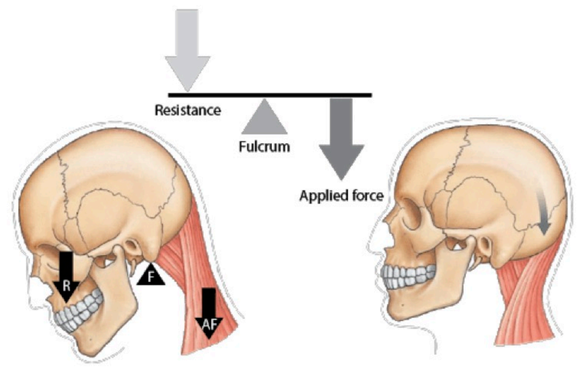
Instruction - First Class Lever

1. Triangle stand sits under middle of wooden plate
2. The metal stabilising pin MUST be inserted
3. Similar number of students stand on each side
4. Move closer and further from the fulcrum to balance

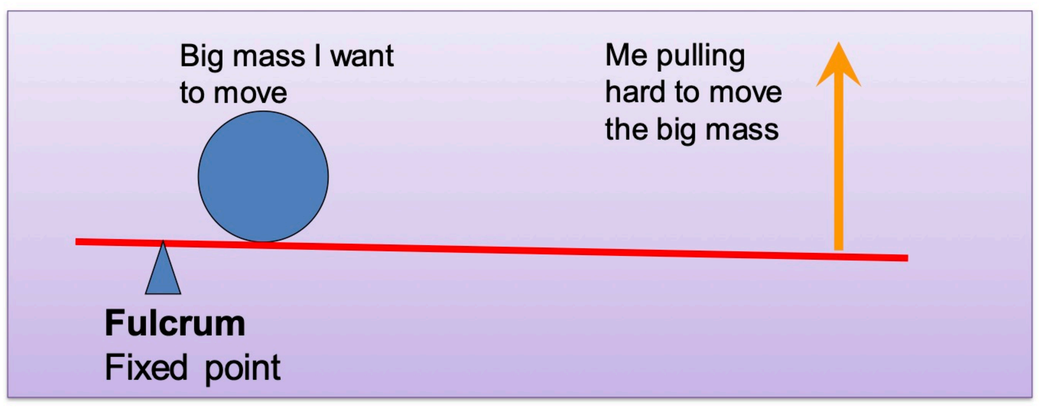
** Safety first **
Have two people steady the pivot!

1st Class Lever in the body:

- Head-neck



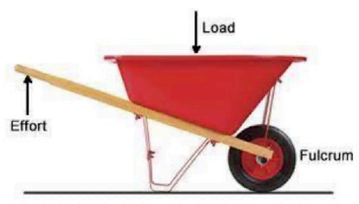
Second Class Lever



Mass on same side of fulcrum as me, but force is applied far from the fulcrum.

Advantage: **Force**

Example: wheelbarrow, push up…



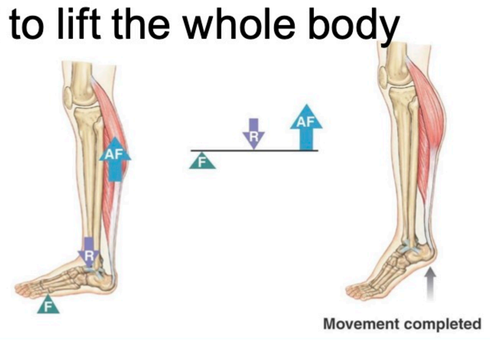
Instruction - Second Class Lever

1. Triangle stand sits under end of wooden plate between wooden stabilisers, ensure stabilising pin is inserted
2. Three-four students stand close to the pivot point
3. *Small* person pulls up handles near the end of the plate

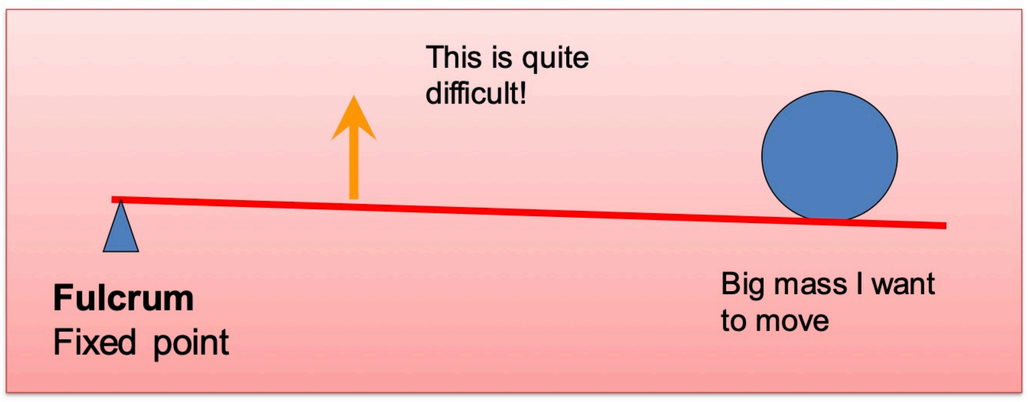
** Safety first **
Have two people steady the pivot!

2nd Class Lever in the body:

- Calf Muscles for standing on toes…
- Advantage: less force needed to lift the whole body



Third Class Lever

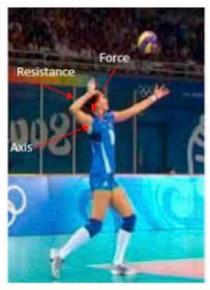


Now the force is applied closer to the fulcrum than the mass

Speed AND Range of Movement

Advantages:

Examples: Volleyball, tennis…



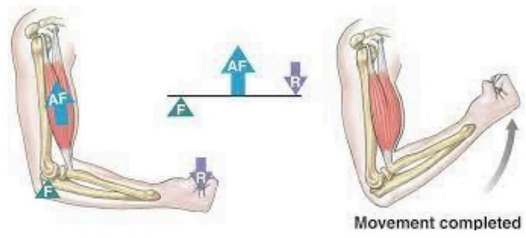
Instructions - Third Class Lever

1. Triangle stand under end of wooden plate between wooden stabilisers, ensure stabilising pin is inserted
2. *Small* person stands on the end of the plate
3. Strong volunteers pull up the handles near the middle

** Safety first **
Have two people steady the pivot!

3rd Class Lever in the body:

- Almost all levers in the body – e.g. across Elbow joint
- Advantage: large range of motion and high speed of motion



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