

How an arm works



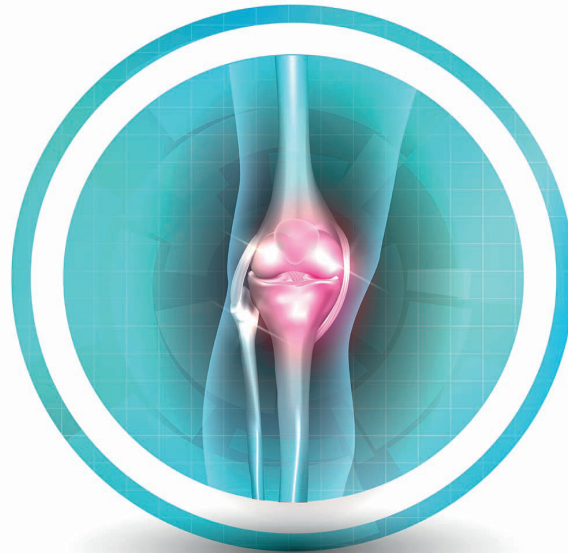
Slide 2 What is movement?

How do we move?



Slide 3 Movement

- Our bones move when our muscles pull on them
- The movement takes place at a joint (a place where two or more bones join together)
- Muscles can only contract and pull bones – they never push them



Think about this: What would it be like if we didn't have any joints? Try:

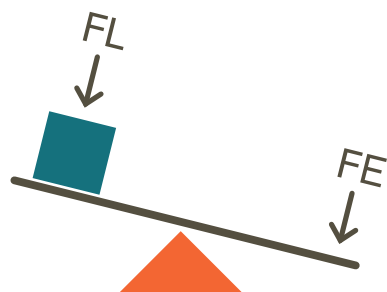
- Acting out eating a meal without bending your elbow
- Walking across the room without bending your knees

How does it feel?

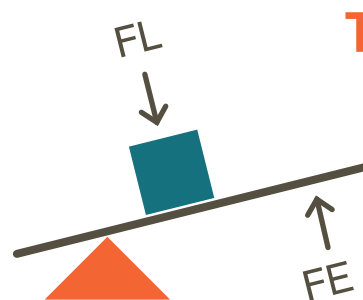


Slide 4 Levers

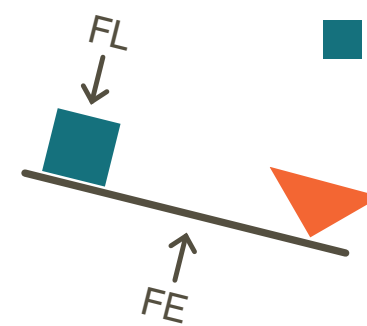
- Our joints are all levers
- There are 3 types (or classes) of lever
- In our bodies the joint is the **fulcrum** of the lever
- Our muscles are the **effort force**
- The thing we are straining against is the load
e.g. if we pick something up



First class lever



Second class lever



Third class lever

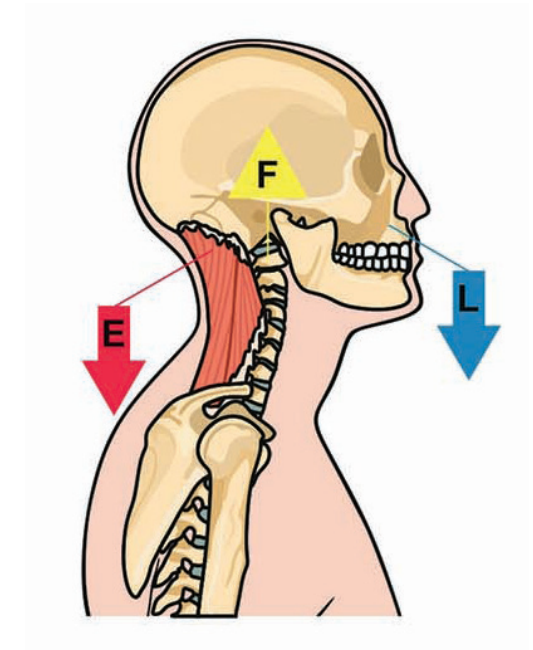
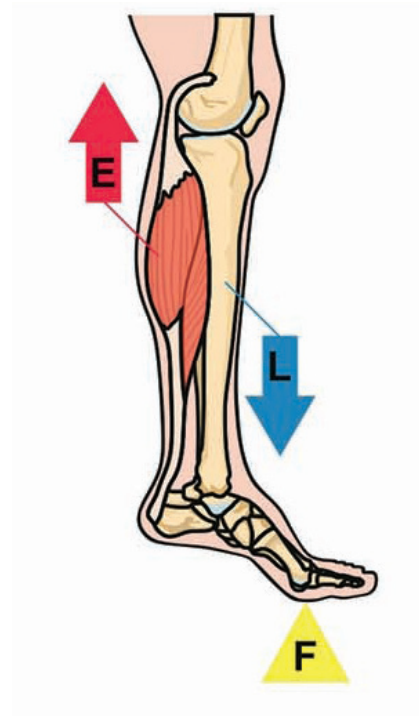
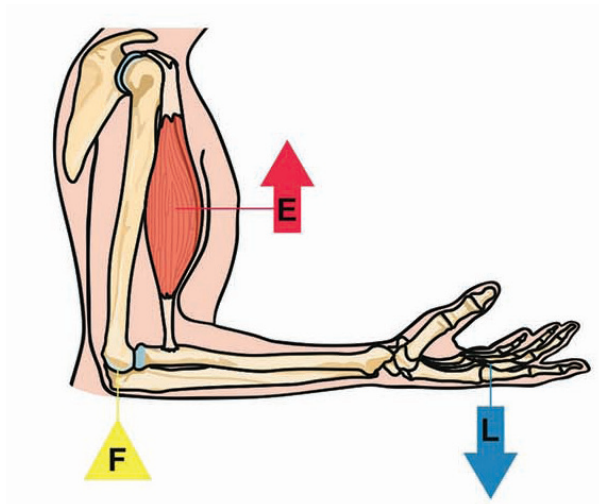
Types of levers

FL = Resistance force
FE = Effort force
▲ = Fulcrum
■ = Load



Slide 5 Quick quiz

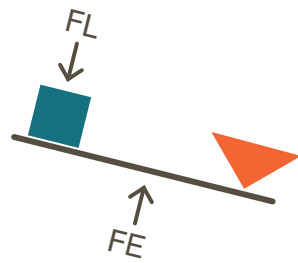
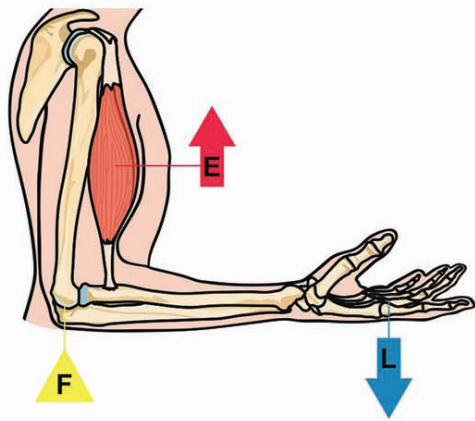
What type of lever is...



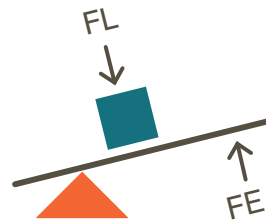
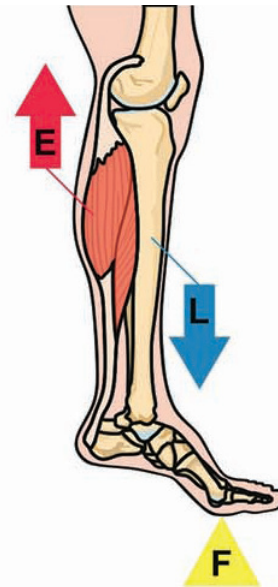


Slide 6 Answers

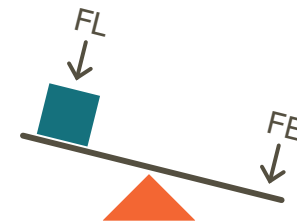
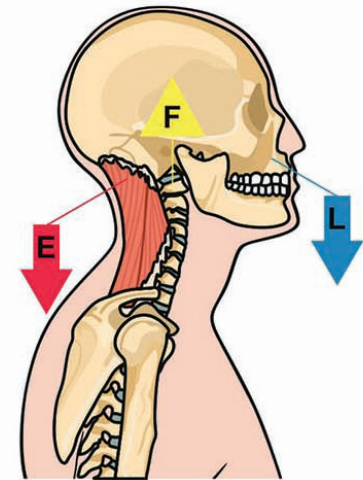
What type of lever is...



Third class lever



Second class lever



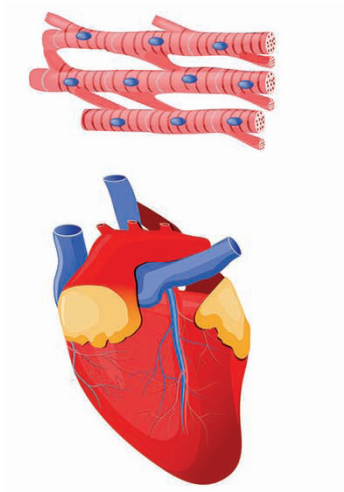
First class lever



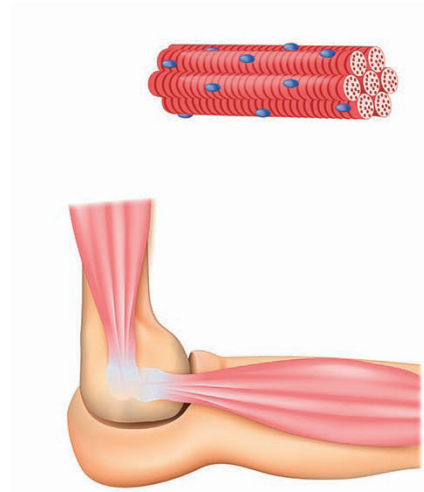
Slide 7 Muscles

We have three types of muscles in our bodies

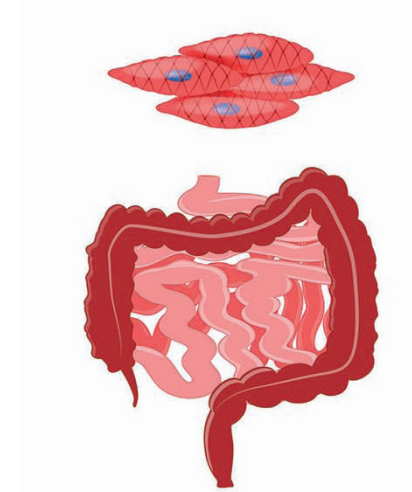
Cardiac muscle



Skeletal muscle



Smooth muscle





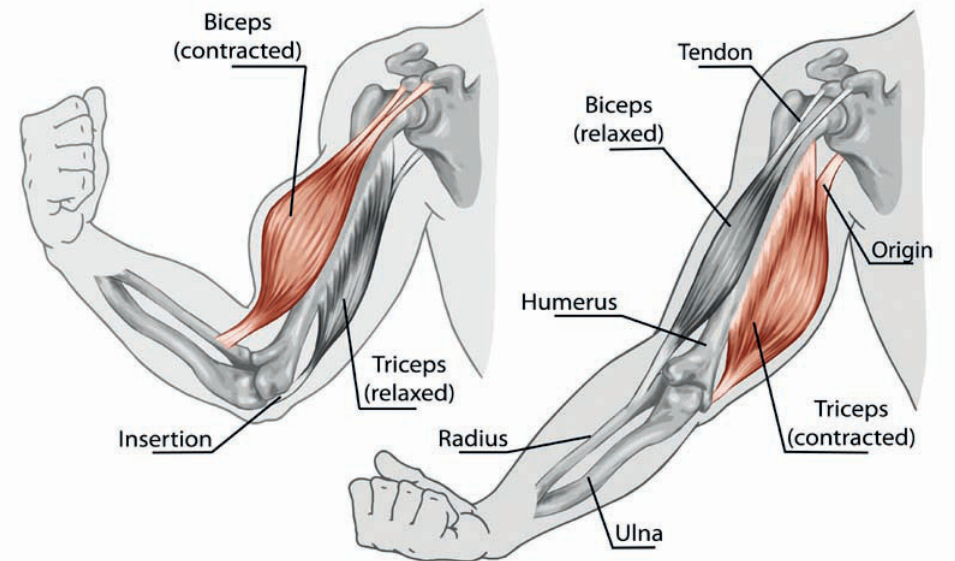
Slide 8

Antagonistic muscle pairs

antagonistic

adjective

Actively opposing (or showing unfriendliness) towards something (or someone).

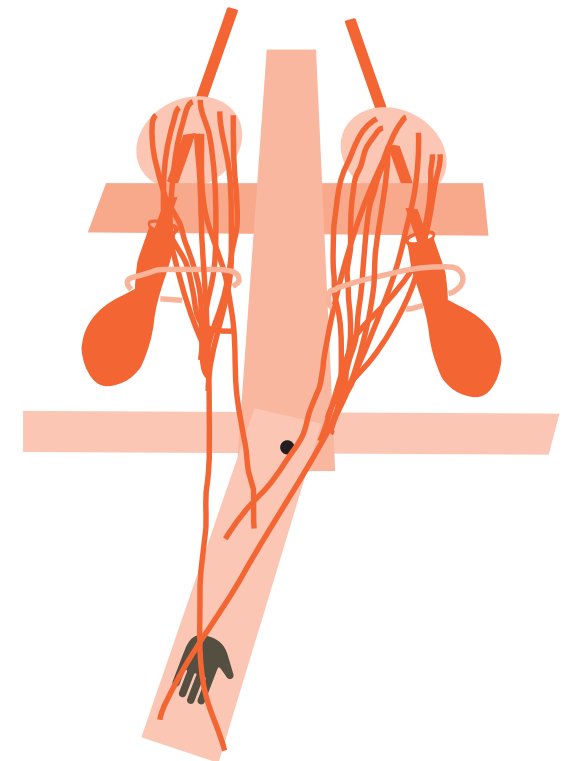




Slide 9

Activity: Build an arm model

- Follow the instructions on your student sheet
- For hygiene reasons, nominate just one member of your group to be the person to blow up the straws/balloons
- Don't forget to tidy up





Slide 10 Recap quiz!

1. How many types of lever are there?
2. What type of lever is the neck?
3. Name the three types of muscle in the human body
4. What is the name given to pairs of muscles?
5. How do muscles cause bones to move?
6. How are muscles connected to bones?



Slide 11 Quiz answers

1. How many types of lever are there? **3**
2. What type of lever is the neck? **First-class lever**
3. Name the three types of muscle in the human body. **Cardiac, skeletal and smooth**
4. What is the name given to pairs of muscles? **Antagonistic**
5. How do muscles cause bones to move? **By contracting**
6. How are muscles connected to bones? **With tendons**

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