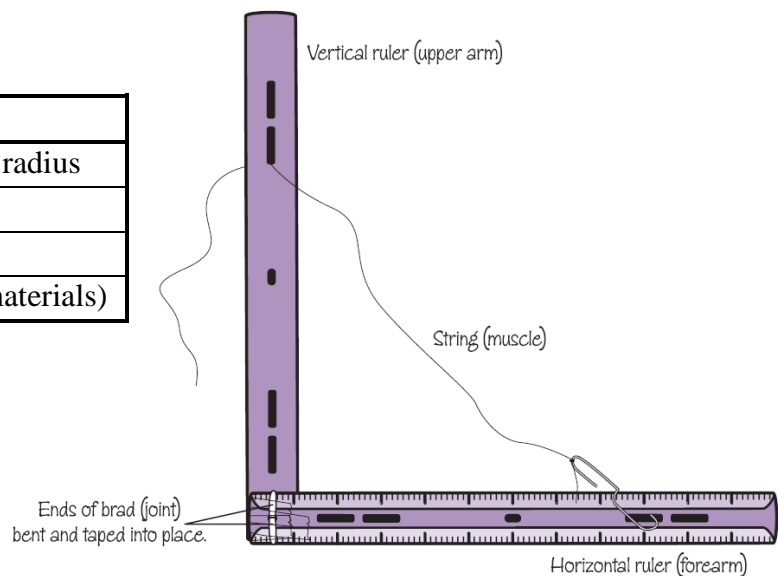


Muscles of the Arm Worksheet

Set-up:

Material	Representation
3 rulers	1 humerus, 1 ulna, 1 radius
1 brad	elbow joint (hinge)
string	muscles
paper clips	tendons (and other materials)



Exercises:

- Investigate muscle origin and insertion locations and muscle moments for elbow flexion. Pull the string ~5 cm for each point and record the distance the bottom ruler moves from the horizontal location.

Muscle Origin Point	Muscle Insertion Point	Amount Forearm Moved (cm)	Comments
Top hole	Farthest from joint		
Top hole	Closest to joint		
Middle hole	Farthest from joint		
Middle hole	Closest to joint		
Lowest hole	Farthest from joint		
Lowest hole	Closest to joint		

- Where can you attach the muscles to achieve the most movement with the least amount of effort?
- Knowing that muscles only pull a joint, how would you extend the elbow? Try it.

Bonus:

- Can you think of a way to modify the model to account for rotation of the forearm?