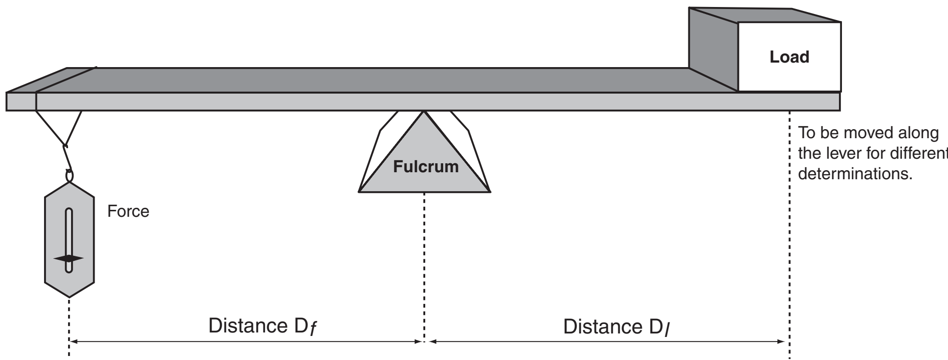
Name____

Lever Type I Worksheet

Trial	Force to Hold Lever Balanced (Newtons)	Load* (Newtons)	Distance D_f (cm)	Distance D_l (cm)	Mechanical Advantage (MA)
1					
2					
3					

*Load is equal to the total weight of the slotted weights. W = m·g, where g = 9.8 m/s^2. 1 N = 1 kg·m/sec^2.



Questions

1. In a Type I Lever, where is the fulcrum when the force and load are equal?

2. In a Type I Lever, what happens to the force required to lift a load as the load gets closer to the fulcrum? What happens to the mechanical advantage?

3. When the load is very close to the fulcrum and the force is far from the fulcrum, how does the distance the force moves compare to the distance the load moves?

4. True or False? Defend your answers.

   a. Lever Type I system would be good for moving a heavy object a small distance using less force compared to the weight of the load.

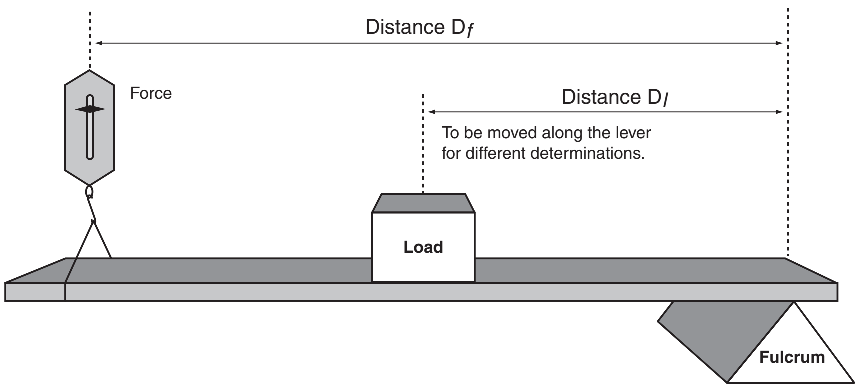
   b. Lever Type I system would be good for moving an object with great speed.

   *c.*A shovel is an example of a Lever Type I.

Lever Type II Worksheet

Trial	Force to Hold Lever Balanced (Newtons)	Load* (Newtons)	Distance D_f (cm)	Distance D_l (cm)	Mechanical Advantage (MA)
1					
2					
3					

*Load is equal to the weight of the slotted masses. W = m·g, where g = 9.8 m/s^2. 1 N = 1 kg·m/sec^2.



Questions

1. Where would you place a load with this lever system to spend the least force to lift the load?

2. Would Lever Type II be a good system for lifting a heavy load with minimal force? Explain.

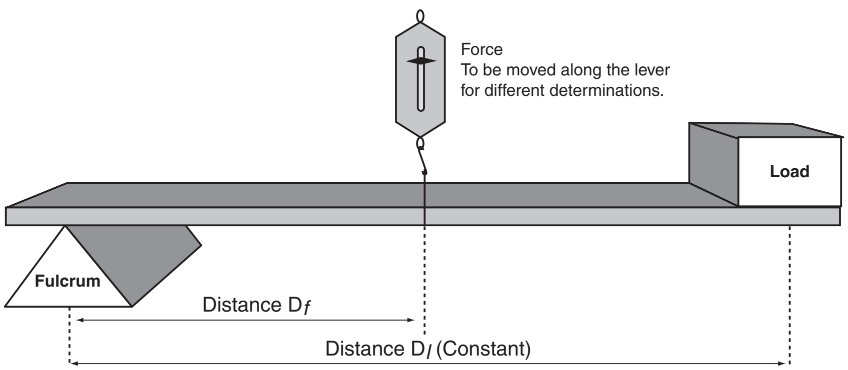
3. Would Lever Type II be a good system for moving a load a long distance? Explain.

4. Think of at least one common item that illustrates a Lever Type II system and explain how it works. What are the advantages and disadvantages of the device for the job?

Lever Type III Worksheet

Trial	Force to Hold Lever Balanced (Newtons)	Load* (Newtons)	Distance D_f (cm)	Distance D_l (cm)	Mechanical Advantage (MA)
1					
2					
3					

*Load is equal to the weight of the slotted masses. W = m·g, where g = 9.8 m/s^2. 1 N = 1 $kg·m/sec^2$.



Questions

1. What happens to the force required to lift the load as the force gets further from the load?

2. What happens to the mechanical advantage as the force gets closer to the fulcrum?

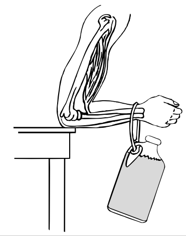
3. When the force is close to the fulcrum and a load is lifted, how does the distance the force moves compare to the distance the load moves? When might such an arrangement be advantageous?

Lever Type Worksheet (Con't)

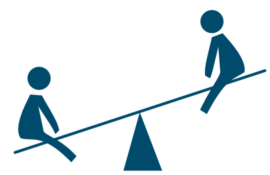
For each diagram below, determine what lever type is illustrated and how the lever system is advantageous.

a. Wheelbarrow Lever Type ______

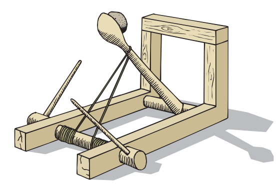
b. Biceps in Arm Lever Type ______



c. Children's Teeter Totter Lever Type ______



d. Catapult Lever Type ______



e. Person Shoveling Lever Type ______

f. Hammer Pulling Nail Lever Type ______