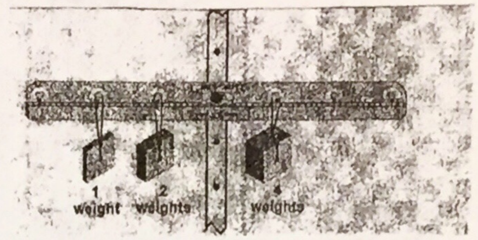
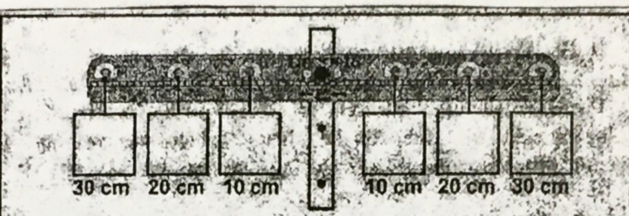
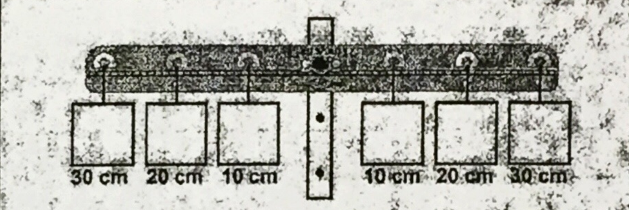
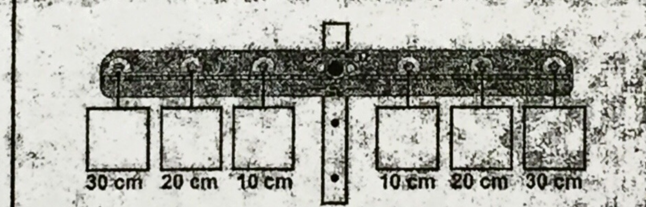
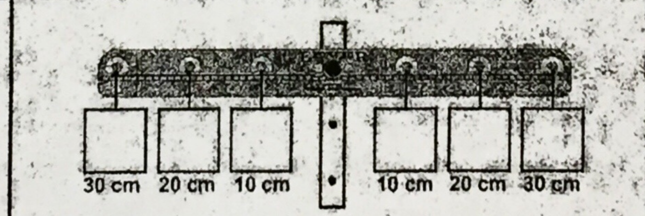
Levers in Equilibrium: the lever is in equilibrium when all the weights on one side balance all the weights on the other side. Hang the weights as shown to the right.



1. Does the lever balance? ___________

2. What variables can be changed to balance a lever? ____________ & ____________.

Procedure: make different combinations of weights and positions that balance. Use the chart below to write down the numbers of weights you put in each position.

Trial #	
Trial #	
Trial #	
Trial #	

SHOW YOUR CALCULATIONS

3. What is the (scientific) definition of Work?

4. For each balanced lever calculate the work on each side (work = force × distance). SHOW CALCULATIONS
   a. Trial 1: Work (left side) = Work (right side) =
   b. Trial 2: Work (left side) = Work (right side) =
   c. Trial 3: Work (left side) = Work (right side) =
   d. Trial 4: Work (left side) = Work (right side) =

5. What is the (scientific) definition of Power?
   a. If the work done on Trial 1 was performed in 34 seconds, what is the power output?
   b. If the work done on Trial 2 was performed in 53 seconds, what is the power output?
   c. If the work done on Trial 3 was performed in 81 seconds, what is the power output?
   d. If the work done on Trial 4 was performed in 25 seconds, what is the power output?

6. State the Law of Conservation of Energy.

7. What is the definition of Energy?
   a. Make a graphic organizer starting with the term energy then the two categories of energy, and finally the various types of energy.

8. What is Potential Energy? (include the equation for gravitational potential energy in your description)
   a. How much (gravitational) potential energy does an 45 kg object have if it is sitting on a shelf 3.4 meters above the ground. (the acceleration due to gravity on Earth is 9.8 m/sec^2)

9. What is Kinetic Energy? (include the equation for kinetic energy in your description)
   a. How much kinetic energy does a 3400 kg truck possess if it is traveling at a velocity of 12 m/sec?

10. What is meant by the term "thermal energy transfer"?
   a. What is the definition of temperature?
   b. Describe Conduction (use a labeled diagram with your description)
   c. Describe Convection (use a labeled diagram with your description)
   d. Describe Radiation (use a labeled diagram with your description)