Physical Science
Chapter 15, Assignment #2

Name _____

Class Period _____

Date _____

Read pages 372-389. Then, **based on the information in your textbook, answer the following questions :**

1. How is the **efficiency** of a machine determined?

2. What is the major reason for **in**efficiency in a machine?

3. What can be done to improve the efficiency of a machine?

4. Why are there no machines that are 100 % efficient?

5. In Figure 15-11, the person is rolling a barrel up a ramp leading to the floor of a building. Explain why the ramp isn't saving any work even though it is making the work easier.

6. If a bolt manufacturer wants to make a bolt with a **greater** mechanical advantage, what change must be made in the design of the bolt?

7. Explain the differences between a fixed pulley and a single movable pulley.

FYI: Another name for a system of multiple pulleys & rope or chain is "block & tackle". "Block" refers to the pulleys and "tackle" refers to the rope or chain. One "block" of pulleys is fixed and the other "block" is movable.

8. Explain how to increase the mechanical advantage of a pulley system.

9. Explain how to increase the mechanical advantage of a wheel & axle system.

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8. Explain why two different wedges can have two different mechanical advantage values.

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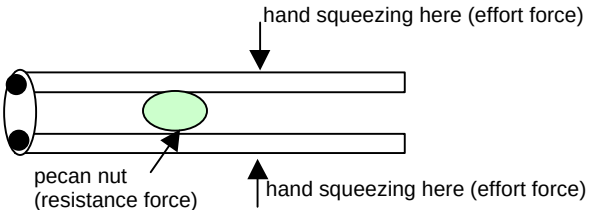
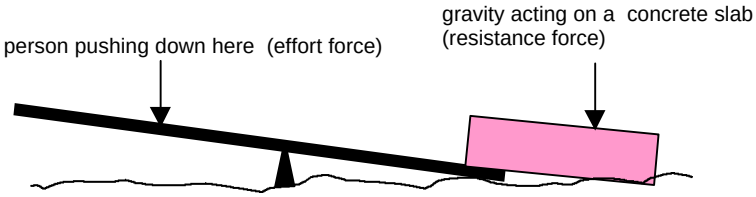
9. Explain or re-draw the diagram below to show how more force can be exerted with the nutcracker (2 solutions).



10. Explain or re-draw the diagram below to show how the amount of force needed to lift the end of the object can be decreased (2 solutions).



11. Explain or re-draw the diagram below to show how the amount of force needed to lift the end of the wheelbarrow can be decreased (1 solutions… 2 if a couple of things are added).