Name _____

Exploring Levers

Background Information: A **lever** is a *simple machine* made with a bar free to move about a fixed point called a fulcrum.

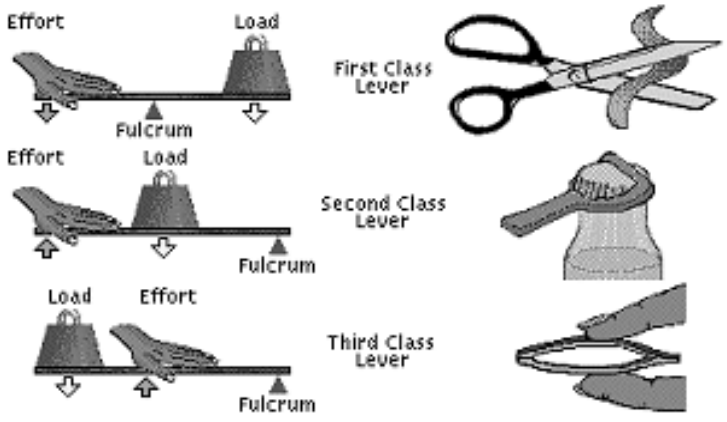
Levers use *distance* to make heavy objects easier to move.

There are four parts of a lever system:
1) the lever arm (a bar or rod)
2) the fulcrum
3) the load or what is being lifted
4) the force used to balance the load. This is also called the effort.

A *first class* lever has the fulcrum placed between the load and the effort.

A *second class* lever has the load located in the middle and the fulcrum and the effort on opposite ends. Examples of *second class* levers: a wheelbarrow, hand truck, wrench, nutcracker, and the handle to a pencil sharpener.

A *third class* lever has the effort in the middle with the load and fulcrum on opposite ends. Commonly used *third class* levers include arms, legs, cranes, catapults, and fishing poles.



Graphic source: http://www.mathsnet.net/courses/dome/levers.gif

Procedure:
Use your lever system to answer these questions:

1. How much force (n) does it take to lift (move) the load?
2. Can you lift (move) a load using only one finger?
3. Does it always take the same amount of force to lift (move) the load?
4. Where should you apply effort to lift (move) a load with the least amount of force?
5. How does the amount of force needed to lift (move) a load change when the type of lever system changes?

Data:
Record your observations in your Journal. Draw diagrams to help explain what you learned.