13.4 Machines in the Body

Date _____

Last Name _____ First_____ Per _____

1. What is a **machine**? _____

2. What is **work**?
   a. _____ is performed when a _____ exerted on an object causes it to _____ its _____.

3. **Work Formula**. What is the formula for calculating work?
   a. Using words

   b. Using symbols

4. **Force**
   a. What is a force? _____

5. **Lever**
   a. What is a lever? A _____ is a _____ _____ consisting of a _____ _____ that pivots or _____ about a _____ point.

   b. Why is a lever useful? _____

6. **Parts of a Lever**
   a. Name the two main parts of a lever.
      i. _____
      ii. _____
   b. Give three examples of levers.
      i. _____
      ii. _____
      iii. _____

7. **Bones, muscles, and joints** make up **lever systems in the body**.
   a. Which of these exerts the force, bones, muscles or joints? _____.
   b. Which of these are the lever arms, bones, muscles or joints? _____.
   c. Which of these are fulcrums, bones, muscles or joints? _____.

8. **Mechanical Advantage**
   a. How does a lever give you a mechanical advantage? _____
   _____

9. **3 Classes of Levers**
   a. What are the three classes of levers?
      i. _____
      ii. _____
      iii. _____

   b. What does the class of lever depend on? _____

10. Draw a **first class lever**. Label it with the words fulcrum, input force, and output force.

    a. Describe where the fulcrum is located in a first class lever. _____
    _____

11. Draw and label a **second class lever** with the same terms you used in the previous question.

    a. Describe where the output force is located on a second class lever. _____
    _____

12. Draw a **third class lever**. Label it with the words fulcrum, input force, and output force.

    a. Describe where the input force is located in a third class lever. _____
    _____

13. Give examples of each of the three classes of **levers in the body**.

    a. First Class _____
    b. Second Class _____
    c. Third Class _____