Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. A simple machine can do which of the following?

1. Make work easier
2. Make work faster
3. Change the direction of work
4. All of the above
5. None of the above

2. Which of the following is a simple machine?

1. Lever
2. Inclined Plane
3. Electric motor
4. Both A and B
5. Both A and C

3. Identify the true statement:

1. Simple machines always increase output force
2. A lever always has a fulcrum *between* the input force and output force
3. Levers can be found in biological systems

4. Suppose a one lever can move a resistance 1 meter with 10 N of force, and another lever can move a resistance 2 meters with 5 N of force. Which lever does more work?

1. The first lever (10 N, 1 meter)
2. The second lever (5 N, 2 meters)
3. They do the same amount of work
4. Neither lever does any work

5. Consider the two levers shown below: which lever will produce a larger output distance with the same input distance?

1. Lever 1
2. Lever 2
3. The output will move the same distance
4. There is not enough information to know

6. Suppose that you apply 2 N of input force to produce 6 N of output force. What is the mechanical advantage of your machine?

1. Mechancial advantage = 10
2. Mechanical advantage = 3
3. Mechanical advantage = 1
4. Mechanical advantage = ⅓

7. Which of the following could cause a machine to work less well than designed?

1. Broken parts
2. Friction
3. Momentum
4. Both A and B
5. All of the above

8. Suppose you wish increase output distance of a lever. Which of the following could you do?

1. Increase the distance from the fulcrum to input
2. Increase the distance from the fulcrum to output
3. Increase the input distance
4. Both A and C
5. Bothe B and C

9. Which of the following is a possible definition of biomimicry?

1. Making sounds like an animal
2. Using examples from nature to design machines
3. Playing the role of an animal in a movie
4. Creating new medicines

10. Which of the following might an engineer design?

1. A robot
2. An airplane
3. A nuclear power plant
4. Both A and B
5. All of the above