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| **1.1Simple Machine QUIZ** |

Directions

List the Six Simple Machines in the spaces below based on the two general categories and draw a schematic representation (in the box provided) of each specific simple machine with the forces involved.

Lever

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Inclined Plane

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**A steering wheel is designed to operate with 3 lbs. of effort force. The system will encounter 17 lbs. of resistance force applied to a 2 in. diameter axle.**

1. Sketch and annotate the wheel and axle system described above.
2. What is the required actual mechanical advantage of the system?
3. What is the required wheel diameter to overcome the resistance force?

**A block and tackle system with seven supporting strands is used to lift a dumbwaiter in a restaurant. The motor being used to wind the cable in the pulley system can provide 40 lb of force.**

1. What is the mechanical advantage of the system?
2. What is the maximum weight of the food and dishes that can be placed in the dumbwaiter?

**A paper cutter applies a 400 N force to a wedge. The machine has a 3 mm thick cutting blade with a 30 degree slope. (Note 30°, 60°, 90° triangle)**

1. Sketch and annotate the wedge described above.
2. What is the length of the slope?
3. What is the ideal mechanical advantage of the wedge?