Worksheet: Rotational Motion **Name**_____

1. Choose the type of motion that matches each description: translational (T) or rotational (R)
   _____ All parts of object move together.
   _____ Some parts of object move faster than others.
   _____ Motion is around an axis.
   _____ Object is treated as a single point.

2. What is *center of gravity*?
   _____

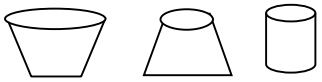
3. In a uniform bar, where is the center of gravity? _____

4. An object topples over when its _____ of _____ is outside its _____ of _____.

5. Why do pigeons move their heads from side to side as they walk?

6. Why must you bend forward when carrying a heavy load on your back?

7. Which of these designs is better for a drink container that sits on the floor of a car? Explain your answer.



8. When tilting an object lowers its center of gravity, the object is in (*stable, unstable*) rotational equilibrium. This is because the force of gravity will make the object (*continue to topple, tilt back to its original position*).

9. Rotational inertia depends on _____ and _____.

10. Why does a long pole help a tightrope walker keep her balance?

11. Anything that affects the rotational motion of an object is a _____.

12. Torque depends on the _____ applied and the distance of that force from the pivot point (called the _____ _____).