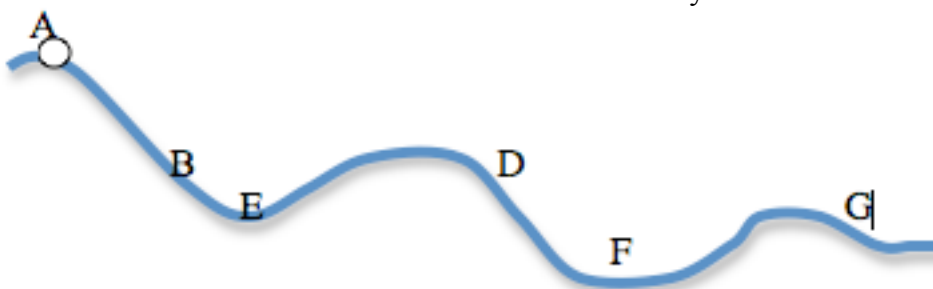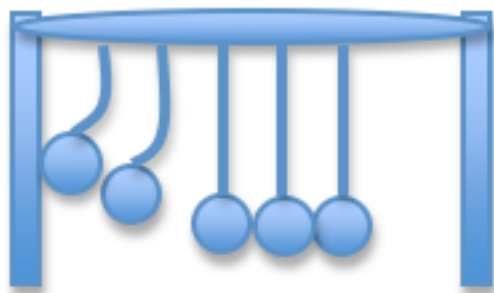## Energy and Heat Transfer Review

Energy

1) Differentiate kinetic energy and potential energy.
2) Kinetic energy is determined by multiplying _____ and _____.
3) Potential energy is determined by multiplying _____, 9.8 m/s^2, and _____.
4) Potential energy _____(increase or decrease) if the mass stays constant and height increases.
5) Potential energy _____(increase or decrease) if the height stays constant and mass increases.
6) Kinetic energy increases if the velocity stays constant and the mass _____.
7) Kinetic energy decreases if the velocity _____ and the mass stays constant.
8) Why does a running dog have more kinetic energy than a car parked outside?

Use the diagram below to answer 9 and 10.
9) Which location has the greatest G.P.E.?   Greatest K.E.?
10) Which location would the ball have the fastest velocity?

11) If a ball were thrown up in the air, where would the ball have the largest GPE? why?

12) In the diagram above, use the law of conservation and the Newton's laws of motion to explain why when you pull and let go 2 balls, the 2 balls from the opposite end will go up. Be sure to use all three laws of motion.
13) On the #12 diagram, where is the highest K.E.? Highest G.P.E.?
14) Define law of conservation of energy.
15) What energy conversion takes place when plants use the sunlight to make food (photosynthesis)?
16) What energy conversion takes place when animals make energy from food to move muscles?
17) Write an example of kinetic energy converting into thermal energy.
18) Write an example of potential energy converting into thermal energy.

Work
19) Define work.
20) Equation for work.
21) Unit of work is _____.

Heat Transfer
22) Differentiate conduction, convection, and radiation.
23) Define specific heat
24) Using specific heat of materials, determine which one will transfer heat quicker.
25) What makes materials good insulators or good conductors?
26) Explain that some heat energy is always lost from a system during energy transformations.