Name _____ **Date:** _____

Swinging Pendulum Worksheet

1. What is the mass of your weight?

m = _____kg

2. Choose a height, h, between 15 – 40 cm (.15 – .4 m).

h = _____m

3. Calculate the potential energy of your weight at the chosen height *Remember, $g = 10\ m/s^2$.*

$$PE = m \cdot g \cdot h$$

PE = _____J

4. Calculate the theoretical velocity, V_t, of your weight at the bottom of the swing. *Remember, all of the potential energy will turn into kinetic energy.*

$$KE = \tfrac{1}{2} \cdot m \cdot V_t^2$$

$$V_t = \sqrt{\frac{2 \cdot KE}{m}}$$

V_t = _____m/s

5. Record the distance between the two tape markers.

distance = _____m

6. Record four time trials

t_1 (sec)	t_2 (sec)	time ($t_2 - t_1$)

7. Calculate your average time

t_{ave} = _____sec

8. Calculate your measured velocity, V_m.

V_m = distance ÷ t_{ave}

V_m = _____m/s

9. How close are the theoretical and measured velocities?