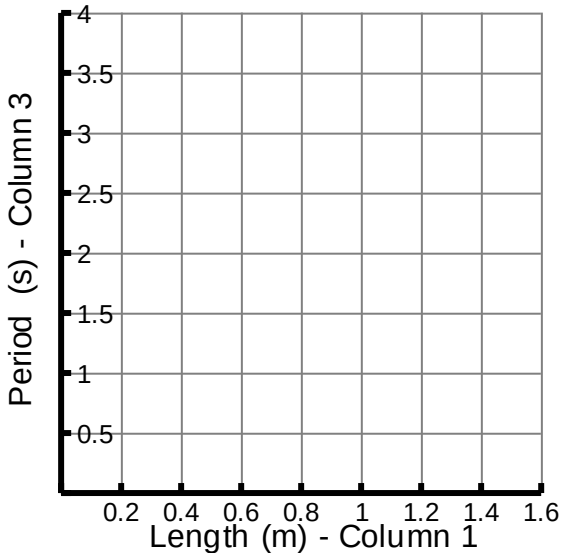
Name_____ Group members_____

Pendulum Swing

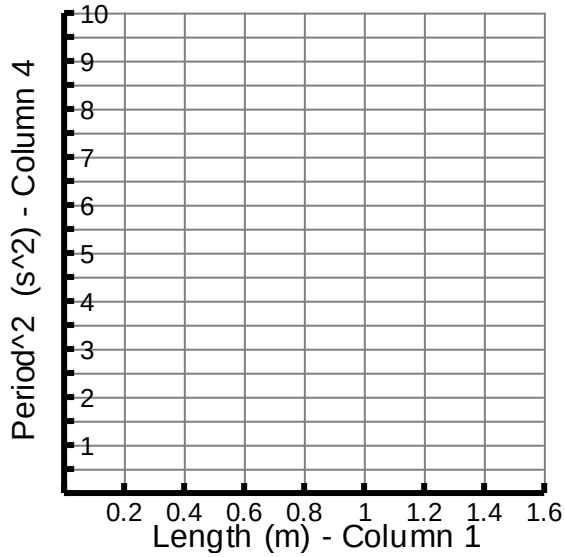
Measure the length for the pendulum. Hold the bob between a 30 and 50 degree angle. Let the pendulum swing once through before starting timer. Record the time it takes to make 10 complete swings.

Length (m)	**time t (s) (10 swings)**	**T Period (s) = t/10**	**T^2**
0.2			
0.4			
0.6			
0.8			
1.0			
1.6			

Period(s) vs. Length(m)



Period^2(s^2) vs.Length(m)



	1st graph	Correlation	2nd graph	Correlation
Lin reg y=ax+b				
Power reg $y=a*x^b$				

Name_____ Group members_____

Questions:

Using the correlation coefficients as a guide:

What shape is the first graph?

What shape is the second graph?

Use the correct equation from the first graph to predict the period of the pendulum if the length is 3 meters. _____

What is the slope of the second graph?

What variables (using y over x) would this slope represent?

There is an equation for pendulums that is $T = 2\pi\sqrt{\frac{l}{g}}$, where l is the length of the pendulum, T is the period and g is the acceleration due to gravity. Square both sides of the equation and solve for g.

Using the slope from above, find an approximation for g on earth (in m/s^2)

$$\%error = \frac{your\ approx - 9.8}{9.8} * 100\%$$