N	20	m	'n	e.	

Date:

#### Student Exploration: Period of a Pendulum

Directions: Follow the instructions to go through the simulation. Respond to the questions and prompts in the orange boxes.

Vocabulary: controlled experiment, mean, pendulum, period

	Get the Gizmo ready:	
Activity B:	<ul> <li>Click Reset.</li> <li>Set L to 0.2 m, g to 10.0 m/s², and θ to 20°. (Note:</li> </ul>	2
Length and period	You can type values directly into the text boxes.)  You can set the mass m to any value.	

**Introduction:** The Dutch scientist Christiaan Huygens is credited as the first to create a formula that describes the period of a pendulum. In this and the next activity, you will derive Huygens's formula by measuring the effect of length and gravitation on the period of a pendulum.

#### Question: What is the effect of length on the period of a pendulum?

1. Predict: How do you think a pendulum's period will change if its length is multiplied by 2?

i think itll go 150% up to the original value

 Measure: Keeping g and θ constant, measure the period for each of the following lengths. Leave the last three columns blank for now. Include all units.

L (m)	Time for 10 swings (s)	Period (s)	Length factor	Tim e factor	√ Length factor
0.2 m	8.88	.9:88	1	1	1
0.4 m	12.72	1.272	2	1.43	1.41
0.8 m	18	1.8	- 4	2.02	2
1.0 m	20.09	2.009	5	2.26	2.23
1.8 m	27	2.7	9	3.04	3

- Calculate: Divide each length by the original length (0.2 m). Record in the "Length factor" column. Fill in the
  "Time factor" column by dividing each period by the original period.
- Calculate: Find the square root of each length factor, and fill in the last column of the table.

# **Period Of A Pendulum Gizmo Answers**

Peter M. Hall

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The Correction of the Period of a Pendulum for the Amplitude of the Swing Walter Davis Lambert,1920 Three Factors that Influence the Period of a Pendulum Peter M. Hall,1954

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