

Pendulum Necklace and Snake Ver. 2.0

How to calculate the correct LENGTHS:

The longest pendulum on this snack is 38.79 cm (measured to the center of mass of the hexnut) and will swing back and forth 24 times in 30 seconds.

Length **Number of Back and Forth Swings in 30 seconds**

(L) (N)
38.79 cm 24

Subsequent lengths can be calculated by using the following formula:

$$L_{n+1} = L_n (N/N + 1)^2$$

For example,

$$L_{25} = L_{24} (24/25)^2$$

$$L_{25} = 35.75 \text{ cm}$$

Length **Number of Back and Forth Swings in 30 seconds**

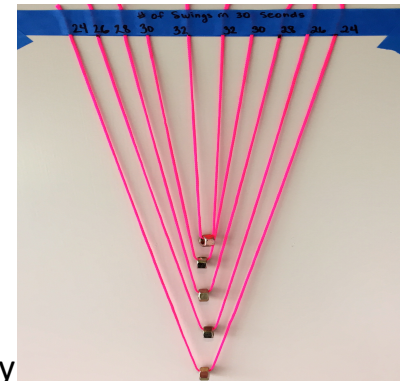
(L) cm	(N)
38.79	24
35.75	25
33.05	26
30.65	27
28.50	28
26.56	29
24.82	30
23.25	31
21.82	32
20.52	33



Exploring the relationship between pendulum length and period.

What to do?

1. Cut string 2x's the length, mark both ends with a marker as shown in the diagram. Measure to the center of the mass of the nut.
2. Lay tape on the table sticky side up, use tape on each end to secure tape to table.
3. Place strings with mark at the edge of the tape so that it will hang freely.
4. Place 2nd piece of tape over the 1st to secure strings.
5. Attach the pendulum necklace to the edge of a table or counter.
6. Use a ruler to pull back all the nuts on the string at one time and release.



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Pendulums made easy