

ISTITUTO COMPRENSIVO TRENTO 5

Scuola secondaria di primo grado "G. Bresadola"

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LOOPING PENDULUM

progetto realizzato da

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Classe 2[^] bilingue

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Purpose

We want to learn new things about Archimedes's physic, we choose Archimedes's spiral because we've never heard about it.

Question

Why and how do the loops made by a weight all around a bar change in speed and in number if we change the weight and the angle?

Hypothesis

We think that the number of loops and their speed will change proportionally changing the weight of the item and the angle/height from where we release the item.

Materials

1. One piece of rope. The length is based on the height of the structure.
2. Two weights: one lighter and one heavier, the heaviest one needs to be between 6 and 14 times heavier than the other.
3. A structure built with a bar on top.
4. Optional: some lights to do the experiment with the darkness

Procedure

1. Build the structure
2. Take the lighter weight and the heavier one, tie them on the ends of the rope
3. Take the lighter weight in your hand and let the rope pass over the bar in such a way that the heaviest weight dangles.
4. Let the lighter weight fall and see what happens
Trying to change the weight and the angle of the released weight (change one variable at a time).

Independent variable	Controlled variable	Dependent variable
The weight of the 2 objects and the angle	The structure's height and the length of the rope	The number of laps of the lighter weight around the bar and the time it takes to loop around the bar

Result

If you have a weight more than 7 times heavier than the lighter one, it will make more laps around the bar proportionally.

Conclusion

If you let the lighter weight fall it from a smaller angle it makes less laps around the bar but it makes them faster than it would do if you let it fall it from a bigger angle.