

Structured Inquiry - Circular Motion Part One

For a spinning (single) rubber stopper (mass) on the end of a string, there are three variables:

1. _____ 2. _____ 3. _____

Inquiry Question: What is the effect of varying _____ on the _____ of the spinning rubber stopper.
 _____ is held constant for these trials.

Manager:
Recorder:
Presenter:

PLEASE WEAR SAFETY GLASSES AT ALL TIMES WHILE COLLECTING DATA.

Trial	Hanging Mass on String	Force (tension in string)	Time for 10 cycles	Ave. Frequency	Ave. Period	Radius	Circumference	Ave. Velocity
1	200g					20cm		
2	200g							
2	200g							
		Ave.						
1	200g					40cm		
2	200g							
2	200g							
		Ave.						
1	200g					60cm		
2	200g							
2	200g							
		Ave.						
1	200g					80cm		
2	200g							
2	200g							
		Ave.						

On a separate sheet, record observations on the relationship between the Radius of the circular motion, frequency, and Velocity (via period and circumference).

Using a spreadsheet (Excel) or graphing software great the following graphs (independent vs dependent) (i) Radius vs Frequency, (ii) Radius vs Velocity

Structured Inquiry – Circular Motion Part Two

What is the effect of varying _____ on the _____ of the spinning rubber stopper.
_____ is held constant for these trials.

PLEASE WEAR SAFETY GLASSES AT ALL TIMES WHILE COLLECTING DATA.

Trial	Hanging Mass on String	Force (tension in string)	Time for 10 cycles	Ave. Frequency	Ave. Period	Radius	Circumference	Ave. Velocity
1	100g					60cm		
2	100g							
2	100g							
		Ave.						
	(Use previous Data)							
1	200g					60cm		
2	200g							
2	200g							
		Ave.						
1	500g					60cm		
2	500g							
2	500g							
		Ave.						

On a separate sheet, record observations on the relationship between the tension force in the string, frequency, and Velocity (via period and circumference).

Using a spreadsheet (Excel) or graphing software create the following graphs (independent vs dependent) (i) Force vs Frequency, (ii) Force vs Velocity

Structured Inquiry – Circular Motion Part Three

Time Permitting: (i) Make a prediction on what impact adding TWO more rubber stoppers to the end of the string would have on the velocity when the radius is 60cm and the hanging mass is 200g. Include your reasoning for your decision. (ii) Test your hypothesis.