

Name: _____

Date: _____

Spaghetti Breaking Force

Objective: To investigate the relationship between the length of a piece of spaghetti and the force needed to break it.

Materials:

Spaghetti

balance

tape

Procedure:

1. Place a piece of tape on the surface of the balance so a sticky surface is created.
2. Zero the balance.
3. Measure the length of a piece of spaghetti. Record its length and the brand in the data table.
4. Place the end of the spaghetti on the tape so it sticks. Slowly add pressure to the spaghetti. Record the mass when it breaks.
5. Repeat with different lengths and brands until the data table is complete.

Data:

Brand: _____

Trial	Length (cm)	Mass at break (g)
1		
2		
3		
4		
5		
6		

Brand: _____

Trial	Length (cm)	Mass at break (g)
1		
2		
3		
4		
5		
6		

Calculations:

Convert the mass at each break to kilograms, then use that mass to find the breaking force:

Brand: _____

Trial	Length (cm)	Mass at break (g)	Mass at break (kg)	Breaking Force (N)
1				
2				
3				
4				
5				
6				

Brand: _____

Trial	Length (cm)	Mass at break (g)	Mass at break (kg)	Breaking Force (N)
1				
2				
3				
4				
5				
6				

Show a sample calculation below from each table:

Construct a graph of Breaking Force vs. Length. Each brand should have its own curve on the graph.

Describe the relationship between the length of the spaghetti and the force needed to break it.

Is there a substantial difference between the two spaghetti brands? Explain.