

INVESTIGATING FRICTION

Name _____

Forming a Question or Hypothesis:

QUESTION BEING TESTED: How does the surface area, texture, and weight influence friction.

BACKGROUND INFORMATION: One of the forces you have studied is friction. Friction is a retarding force. This means it lessens the effects of other forces. Friction causes a “loss” of useful energy in many mechanical devices. This energy is not really lost but is transferred to heat energy at the point of contact. Rub your hands together and notice they get hot. In this lab you will learn how surface area, texture, and weight influence friction.

HYPOTHESIS: _____

GENERAL STATEMENT OF LAB: We will use a Newton scale to measure the amount of friction produced when we pull a block of wood and vary the surface area, texture, and weight.

Designing the Investigation:

Procedure:

1. Measure the area of both sides of the piece of wood.

A side of block = _____ cm²

B side of block = _____ cm²

2. Place the block on the lab table with its larger surface (side A) downward.
3. Pull the block, keeping the Newton scale level with the surface.
4. Record both the starting friction and sliding friction.
5. Do this two more times.
6. Do the same things with the smaller surface (side B) and record.
7. Next do the same things with different textures and different weights as indicated by your teacher.

Collection and Presenting Data:

Surface Area

Surface A		
Trial	Starting Friction (N)	Sliding Friction (N)
1		
2		
3		
Average		

Surface B		
Trial	Starting Friction (N)	Sliding Friction (N)
1		
2		
3		
Average		

Texture

Surface A		
Trial	Starting Friction (N)	Sliding Friction (N)
1		
2		
3		
Average		

Surface B		
Trial	Starting Friction (N)	Sliding Friction (N)
2		
3		
Average		

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Surface A		
Trial	Starting Friction (N)	Sliding Friction (N)
1		
2		
3		
Average		

Surface B		
Trial	Starting Friction (N)	Sliding Friction (N)
1		
2		
3		
Average		

Conclusion:

1. How did the starting friction compare to the sliding friction? _____

2. How does the amount of surface area influence the sliding force of friction? _____

3. How does texture influence the sliding force of friction? _____

4. How does weight influence the sliding force of friction? _____

5. List two situations in which friction can be helpful.

a. _____

b. _____

6. List two ways in which friction is not helpful.

a. _____

b. _____