

The Coefficient of Friction Lab

Purpose: to determine the coefficient of friction for several substances from appropriate data.

Procedure:
828

- 1) Obtain the friction blocks from the front and a spring scale. Hang the friction block from the scale to determine the force of gravity on it. Record as your first normal force.
- 2) Drag the block at a constant velocity across a table while hooked to a spring scale to determine the minimum amount of force needed to counter act the force of friction. Record the force in a table like the one below, use the type of friction block as the title for the table.

Normal Force	Force of Friction
SAMPLE ONLY	
DO NOT USE	

- 3) Add 200 grams to increase the normal force on your friction block. Repeat procedure 2 using your new normal force.
- 4) Increase the mass on the block 3 more times, increasing the mass by at least 200 g each time, and repeat.
- 5) Plot each of your tables on graph paper as a plot of F_f vs. F_n . Your graph should be one full page. Calculate the slope of the graph.
- 6) Change friction blocks and repeat procedures 1 through 5 using 4 other friction blocks. Plot on the same graph using a different colour for this line.

Discussion:

- 1) Under what condition is the normal force equal to the force of gravity?
- 2) What does the slope of your graphs represent?
- 3) Which substance has the highest μ value?

Do a meaningful conclusion to this lab.

The Coefficient of Friction Lab

Purpose: to determine the coefficient of friction for several substances from appropriate data.

Procedure:

- 1) Obtain the friction blocks from the front and a spring scale. Hang the friction block from the scale to determine the force of gravity on it. Record as your first normal force.
- 2) Drag the block at a constant velocity across a table while hooked to a spring scale to determine the minimum amount of force needed to counter act the force of friction. Record the force in a table like the one below, use the type of friction block as the title for the table.

Normal Force	Force of Friction
SAMPLE ONLY	
DO NOT USE	

- 3) Add 200 grams to increase the normal force on your friction block. Repeat procedure 2 using your new normal force.
- 4) Increase the mass on the block 3 more times, increasing the mass by at least 200 g each time, and repeat.
- 5) Plot each of your tables on graph paper as a plot of F_f vs. F_n . Your graph should be one full page. Calculate the slope of the graph.
- 6) Change friction blocks and repeat procedures 1 through 5 using 4 other friction blocks. Plot on the same graph using a different colour for this line.

Discussion:

- 1) Under what condition is the normal force equal to the force of gravity?
- 2) What does the slope of your graphs represent?
- 3) Which substance has the highest μ value?

Do a meaningful conclusion to this lab