

## 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.

Title -

<u>Normal Force</u>	<u>Force of Friction</u>
DO NOT USE	

- 3.) Add 200. g 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 color 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  $\mu$  value?

Conclusion - State your results for the coefficient of friction for the materials and which material is the stickiest and which material is the slipperiest.