

Hands-on Activity 2.2b: Does Contact Area Matter?

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Keywords: friction, static friction, kinetic friction, coefficient of friction

Materials List

- 20N Spring Scale
- ceramic coffee mug
- scissors
- string
- 500g weight
- cardboard 1 square foot

Introduction

Write the hypothesis you wrote about weight and friction.

If _____ then _____.

Vocabulary/Definitions

friction: a resistance to motion that occurs when two surfaces are in contact with each other

static friction: the resistance to motion that must be overcome in order to allow one surface to begin sliding against another surface

kinetic friction: the resistance to motion that occurs once one surface is in motion, sliding against another surface

coefficient of friction: an empirically derived quantity for a pair of surfaces that is equal to the amount of friction measured divided by the weight of the object being moved

Procedure

Part 1: Conducting the Experiment

Use the list of materials above and record all your data in a table. This data will be used to make a graph like the one that you saw in the lesson. Make sure you record correct units.

Area (Length x Width)	Force of Friction
	Static =
	Kinetic =
	Static =
	Kinetic =
	Static =
	Kinetic =
	Static =
	Kinetic =

Part 3: Analyzing the Data

1. Use the graph below to create a graph of the data obtained for the three weights used. There should be 6 dots, three dots for static friction and three dots for kinetic friction. Use little triangles for static friction instead of dots.
2. Label Y-axis Force (Newton), Label X-axis Surface Area (in^2).
3. Number the axis with appropriate numbers.
4. Connect the dots with a line and connect the triangles with a line. If you did a good job the line will be straight.

