

Static and Kinetic Friction

Purpose: To study static and kinetic friction.

Materials: Spring scales, wood, various surfaces

Part I – Overcoming Static Friction

- Obtain a piece of wood with a string and attach it to a spring scale.
- Record the normal force.
- Slowly pull the spring scale, watching the value carefully as you pull.
- Record the force just as the surface begins to move.
- Calculate the coefficient of static friction.
- Repeat two more times with different normal forces.
- Calculate the average coefficient of static friction.
- Repeat with a different surface beneath the block of wood.

Part II – Kinetic Friction

- Set up as in Part I, but slide the object along a surface at a constant speed (the scale should read a constant value; you can use the surfaces from Part I).
- For three unique surfaces beneath the block of wood find the coefficient of kinetic friction.

Part III – Ramp it Up with Static Friction

- Repeat the experiment as instructed in Part I but have you block of wood on an incline. Determine the force of static friction but only do this for wood on wood but repeat it three times to obtain an average force of friction.
- Calculate the coefficient of static friction.
- Calculate the angle the incline makes with the horizontal.
- Create a new angle and repeat.