

# Frictional Force

---

Name: \_\_\_\_\_ Date: \_\_\_\_\_

**The frictional force,  $F_f$ , is the force that resists the motion of an object.**

The **magnitude of the frictional force** depends on **two factors**:

- The **surfaces in contact** – measure of the amount of “stickiness” between two surfaces is denoted by:

$\mu$  – coefficient of friction

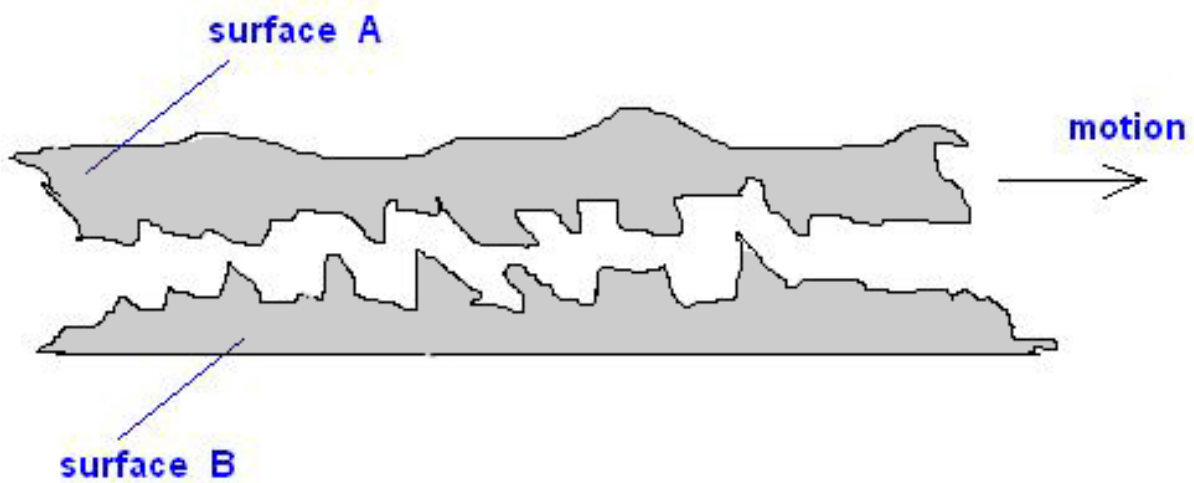
- The **normal force** ( $F_N$ ).

The mathematical relationship between the three variables is:

$$F_f = \mu F_N$$

## Explaining Friction

---



**Static Friction:** the friction (coefficient,  $\mu_s$ ) that exists when an object is stationary (static)

**Kinetic Friction:** the friction (coefficient,  $\mu_k$ ) that exists when an object is in motion (moving)

The following relationship exists:

$$\mu_s > \mu_k$$



<http://youtu.be/uSfAut5GMq4>

## Examples of Coefficients of Friction

---

Many experiments have been done to determine the coefficient of friction between a vast array of materials. Engineers and physicists use these tables to analyse the frictional forces of systems.



<http://www.engineershandbook.com/Tables/frictioncoefficients.htm>