

Observe what happens on an atomic level when you rub two objects together, and explore how friction causes a material to heat up.

MOVE the chemistry book from within the microscopic view

RUB the books together to generate friction

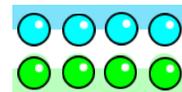
INVESTIGATE friction on the molecular level

OBSERVE how the temperature changes as molecules move faster

NAVIGATE the sim using keyboard shortcuts

Model Simplifications

- The position of the Physics book is fixed, and will not move in response to the motion of the Chemistry book.
- The Physics book is made of a harder material than the Chemistry book, and therefore will not lose any of its molecules.
- The layer of molecules at the edge of the book are tightly bound. No amount of heat will remove them.



Suggestions for Use

- **Lecture Demo:** Have students rub their hands together, and sketch what they think is happening on a molecular level. Compare to the simulation.
- **Challenge Prompt:** Use Kinetic Molecular Theory to explain what happens to the molecules in the books when the temperature increases.

See all published activities for Friction [here](#).

For more tips on using PhET sims with your students, see [Tips for Using PhET](#).