No Rubbing

Purpose
To examine how lubricants affect motion.

Materials
Craft Stick  Petroleum Jelly
Two 4-inch (10-cm) squares of rough sandpaper

Procedure
1. Place the rough sides of the sandpaper together.
2. Slide the two pieces of paper back and forth against each other. Observe how easy or difficult it is to move the sandpaper pieces.
3. Separate the sandpaper pieces and use the craft stick to spread a thick layer of petroleum jelly over the rough surface of one of the pieces.
4. Repeat steps 1 and 2.

Results
It's hard to move the sandpaper pieces when their rough sides are rubbing against each other. The sandpaper pieces move more easily when one of them is covered with petroleum jelly.

Why?
The ridges on the sandpaper catch against each other and stop motion. The surfaces of all materials have some rough spots. So when two surfaces are rubbed together, these rough areas catch and stop or slow motion. The petroleum jelly, like all lubricants (slippery substances that are placed between two moving surfaces to make them move more smoothly), fills the low places in surfaces it covers. When the petroleum jelly was sandwiched between the two sandpaper pieces, the jelly filled the low places in each piece. This smoothed out the rough spots on the sandpaper pieces, so there was less friction.