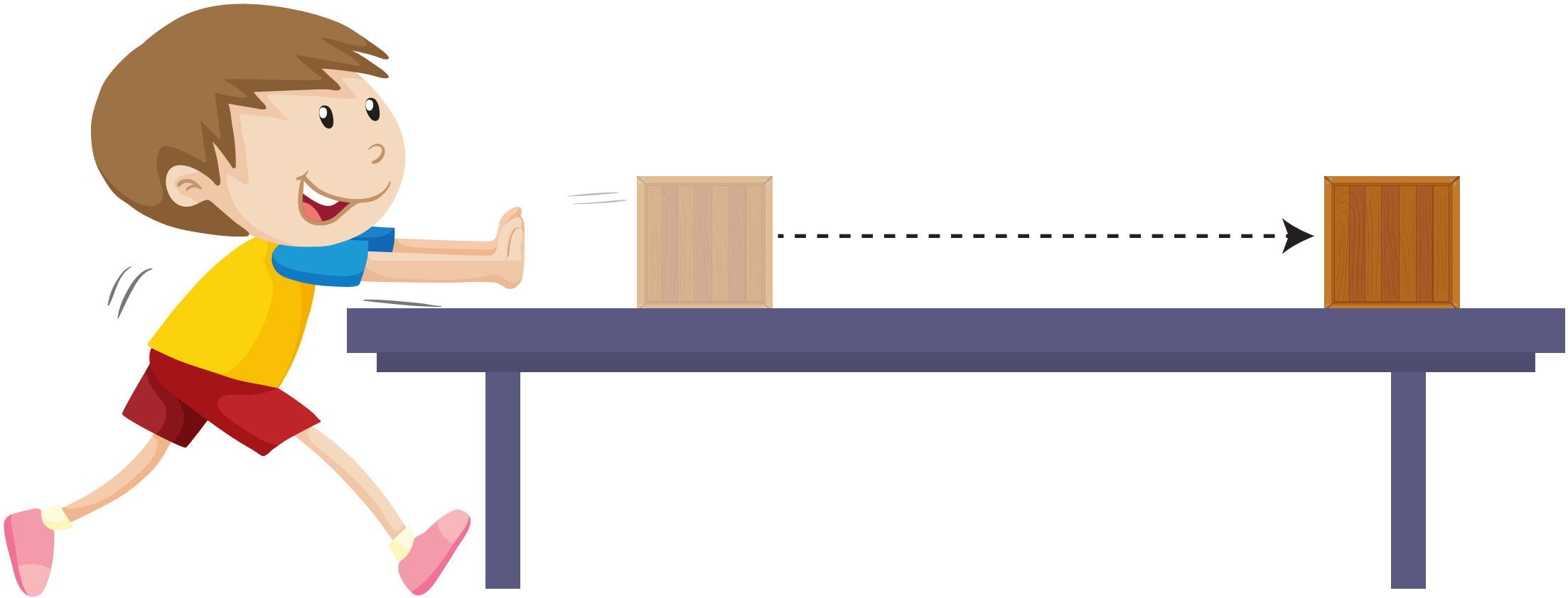
What is Friction?

This boy pushed a small box across the table.

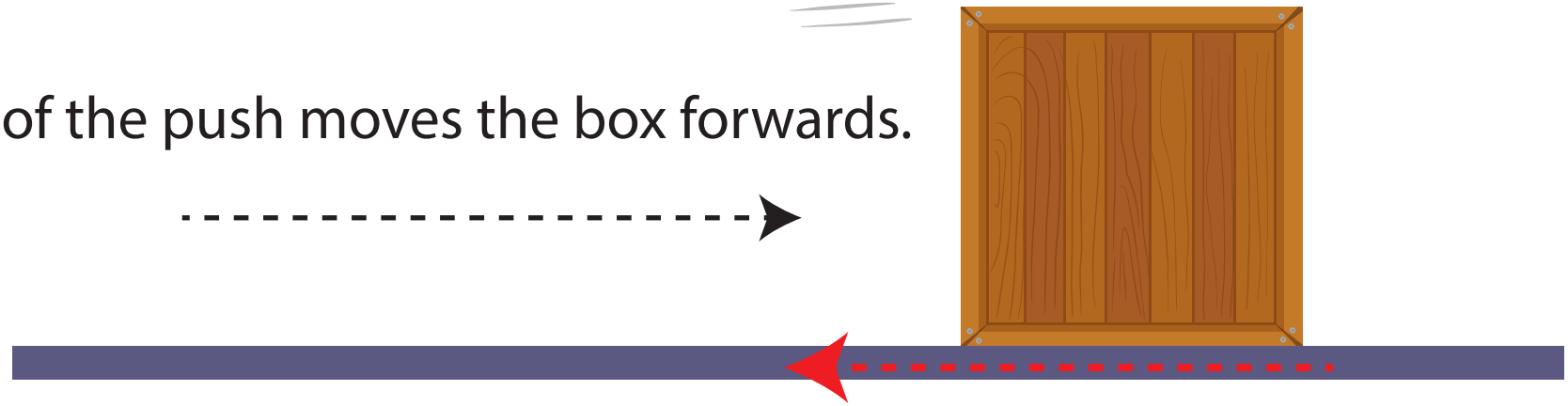
What made the box stop moving?



Let's take a closer look?

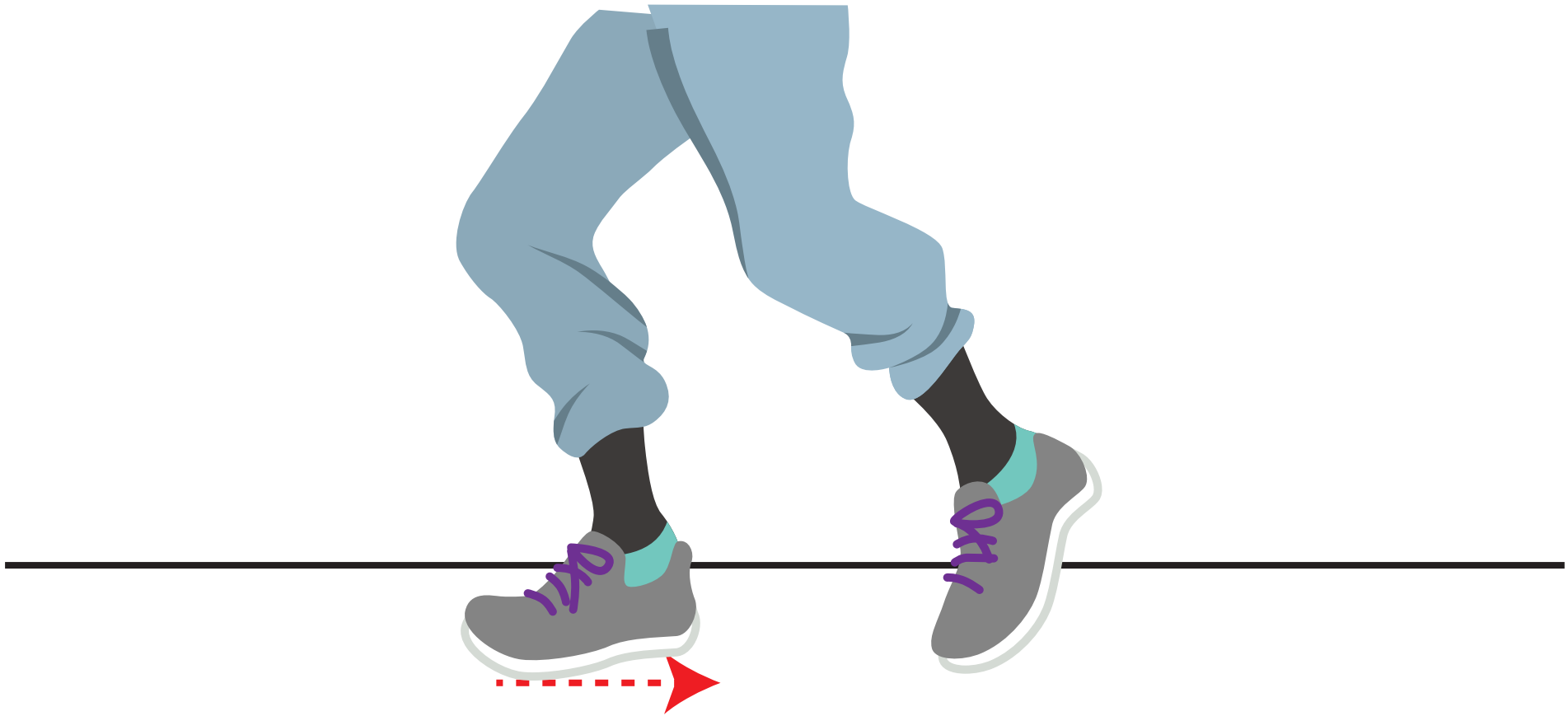
Friction is a force between two surfaces. Friction holds back the movement of the sliding object. That is, friction always slows a moving object down.

The force of the push moves the box forwards.



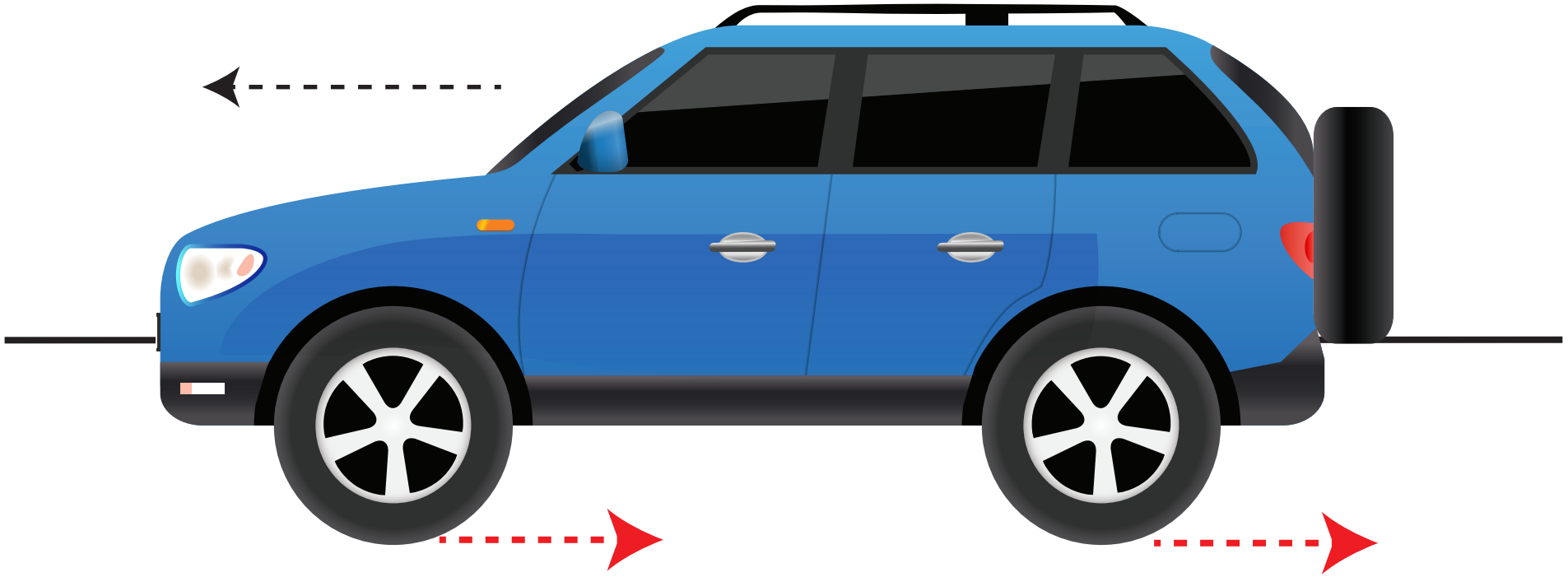
The friction between the two surfaces acts in the opposite direction - eventually stopping the box's movement.

Friction's force is very useful.
Friction between the sole of this person's shoe and the ground stops them from slipping.



There's friction between the sole of the shoe and the ground.

When the car's brakes are applied the wheels stop turning.
It's the force of friction created between the rubber and the road that stops the car's movement.

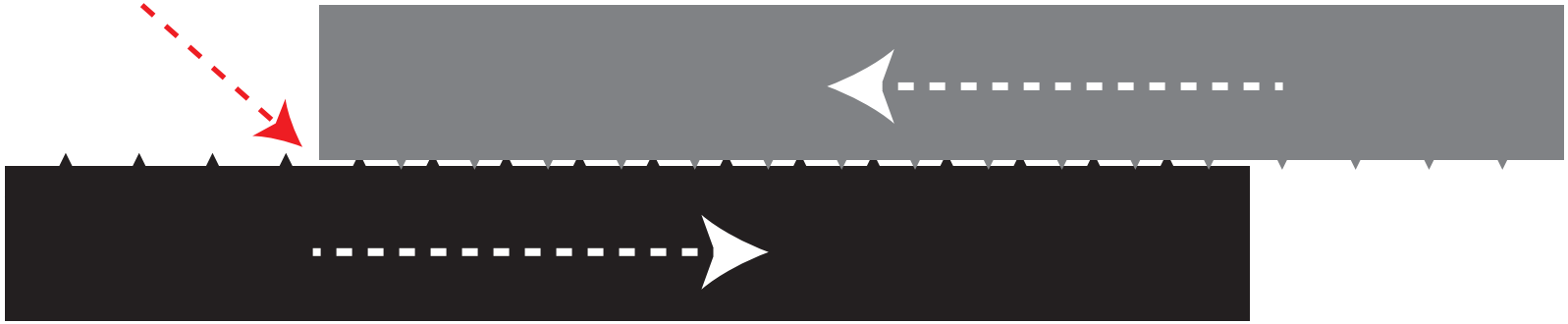


When the wheels stop turning, friction stops the car from moving.

Let’s take closer look.

It doesn't matter how smooth things look or feel. Look at them under a microscope and you'll see they're always rougher than you think. When they move, these surfaces snag against each other, slowing down the movement. That’s why rougher surfaces create greater friction.

The snagging of the rough edges creates friction.



Water reduces the friction between two surfaces. Less friction means less grip between the two surfaces.

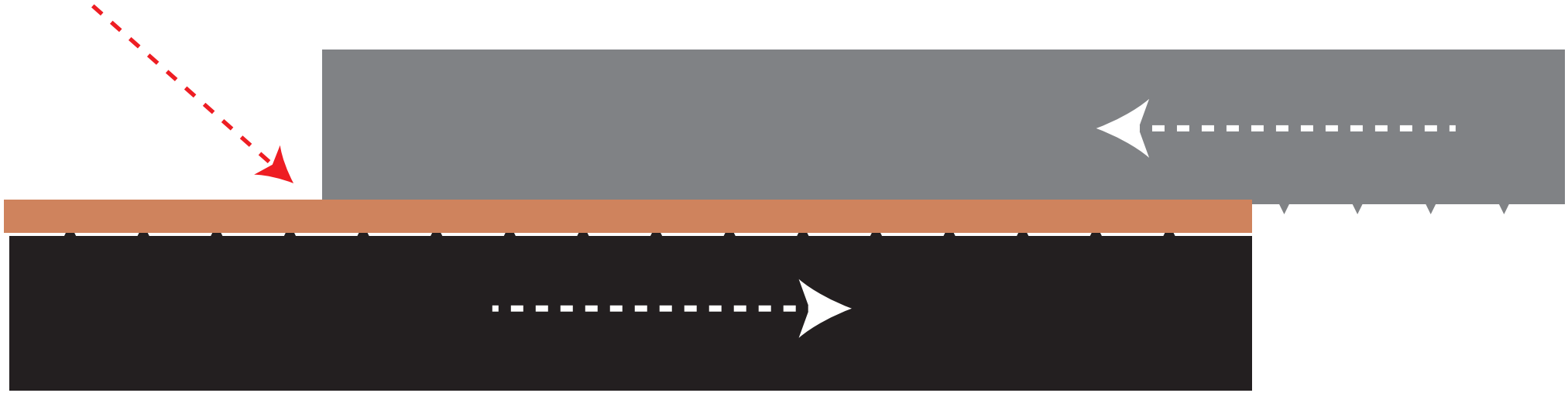
A wet floor is slippery because water reduces the friction between a person's shoe and the floor.

Placing oil between two surfaces greatly reduces friction.

Oil is added to engines to reduce the friction between the moving parts.

How do lubricants like oil reduce friction?

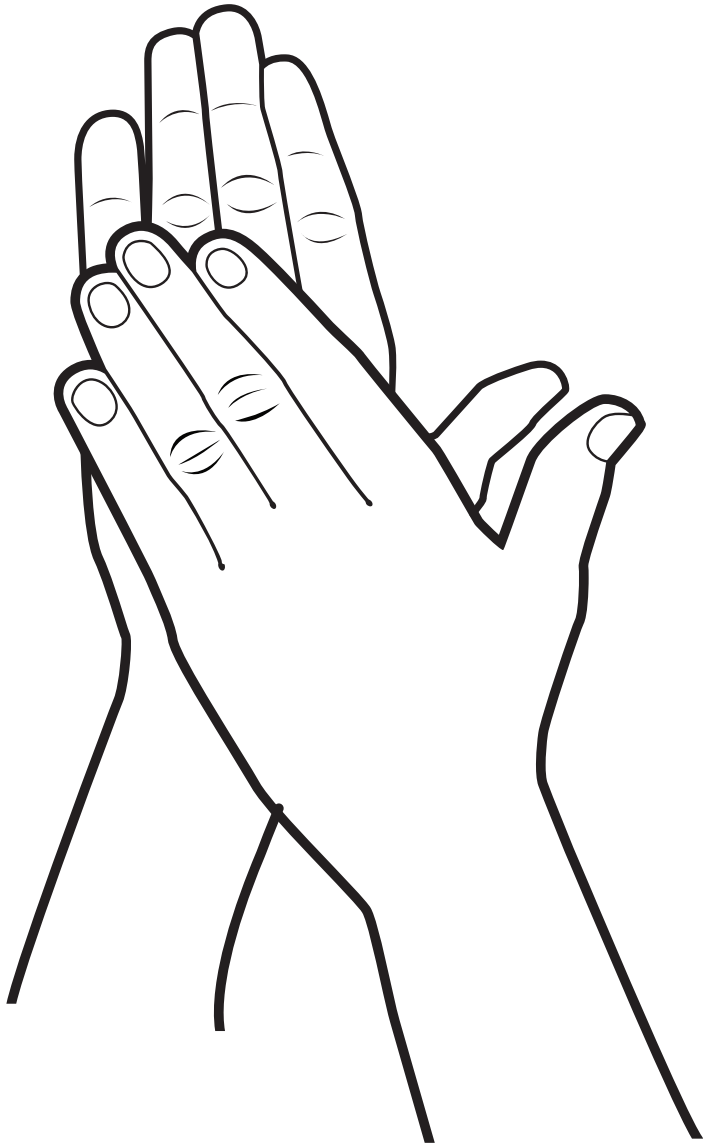
The oil creates a barrier between the two surfaces so that the rough edges don't snag.
Also oil is a liquid so it moves around freely.



Let’s create some friction.
Rub your hands together for 30 seconds.
Did you create any friction?
What else did you notice?

Did your hands get hotter?
That's because friction also produces heat.

What can you place between your hands to reduce friction?



Next time you're washing your hands try reducing friction by placing soap between your hands.