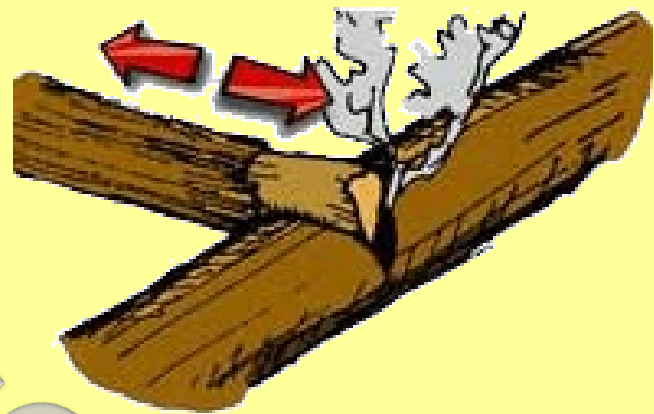
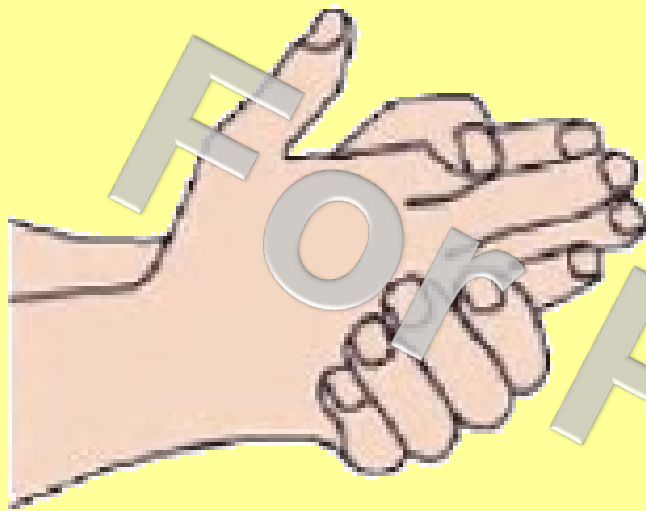




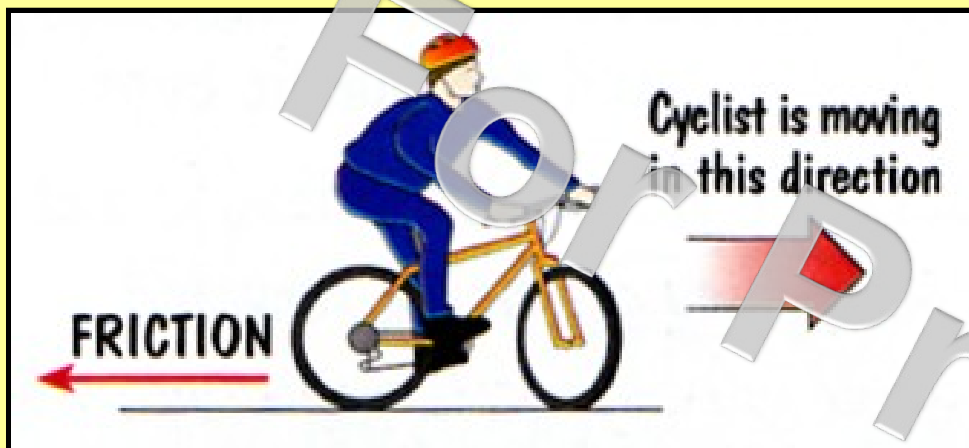
# Friction



**Friction** is the force created when two touching surfaces move past each other.



Friction also produces heat. For example, if you rub your hands together quickly, they get warmer. In the past, people used to start a fire by rubbing wood together.



Friction is always slowing a moving object down. This is because friction works in the opposite direction to the object that is moving.



The amount of friction depends on the materials from which the two surfaces are made. The rougher the surface, the more friction is produced.





You would have to push a book harder to get it moving on a carpet than you would on a wooden floor. This is because there is more friction between the carpet and the book than there is between the wood and the book.





The general rule is:  
the rougher the  
surface, the more  
friction there is.  
The smoother the  
surface, the less  
friction there is.



# Useful Friction

Friction can be a useful force because it prevents our shoes slipping on the pavement when we walk and stops car tyres skidding on the road.





# Dangerous Friction

Ice causes very little friction, which is why it is easy to slip over on an icy day. But this is a good thing for ice skating and sledging. It is also easy to slip over on wet surfaces. The water acts as a lubricant.





Sometimes we want to reduce friction. For example, moving parts inside a car engine are lubricated with oil, to reduce friction between them. The oil holds the surfaces apart, and can flow between them. The reduced friction means there is less wear on the metal, and less heat.

