

Newton's 1st Law Inertia



0:03 / 0:08

An object at rest stays at rest.

An object in motion stays in motion.

It keeps its same speed and direction

unless acted upon by an outside force.

If I yank a paper suddenly from underneath a stack of Christmas ornaments, or a table setting, it won't fall over. [video](#)

Newton's 2nd Law $F = ma$



A golf club can apply 4000 lbs of force to a golf ball. It can go from 0 to 150 mph in 0.0005 seconds, an acceleration of 50,000 G. A golf ball weighs 1.620 oz (45.9 g).

Newton's 3rd Law



For every action, there is an equal and opposite reaction.

Equal and Opposite: My mom and friend's weight was a downward force. The rope swing tension was equal force upward. Balloons were a buoyant force up. My hand holding the balloons was equal and opposite force down.



Newton's 3rd Law



Equal and Opposite: The upward tension of the fishing rod is equal to the fish pulling downward.

Newton's 3rd Law

For every action, there is an equal and opposite reaction.



Equal and Opposite: The downward force of the rocket fuel is opposite to the upward force on the rocket.