Name: _____ Period: _____ Date: _____

Isaac Newton was an English scientist, astronomer, and mathematician who lived from 1642 – 1727. He made many observations about the world around him, which eventually led him to create three basic principles about motion that we now call Newton's Laws of Motion.

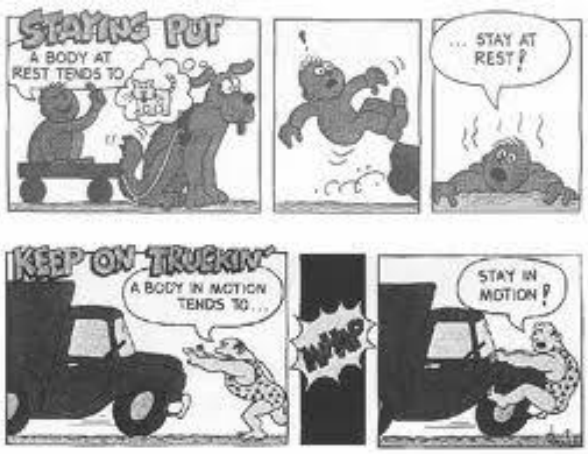
Newton's 1st Law of Motion: An object ___at rest__ will stay _at rest, and an object ___ in motion _____ will stay ____in motion ____, until an outside ____force___ acts on the object. (The 1st law is also called the Law of Inertia.)

Inertia is the tendency of an object to ___resist___ a change in its motion.

If an object is at rest (not moving), it will stay that way until something (a force) causes it to move

You must *overcome* inertia in order to move an object that was originally not moving, and you must *overcome* inertia in order to slow or stop an object that was originally moving.

If an object is moving, it will continue moving in a straight path until something (a force) slows it down or stops it.



An object at rest tends to stay at rest and an object in motion tends to stay in motion, unless the object is acted upon by an outside force.

This means that if you leave a ball on a table overnight, the ball will be in the same place where you left it when you return in the morning unless something or someone has made it move. If you roll the ball, it should continue moving at the same speed in a straight line until a force makes it change. A force called **friction** slows things down. Friction between the ball and the table will slow the ball down to a stop. If the ball rolls off the table, the force we call **gravity** pulls it downwards.

Watch the crash test videos...

- What happens to the crash test dummy when the car collides with the wall?
  The crash test dummy continues moving forward during when the car collides with the wall.

- Do you notice any bits of the car that come off when it collides with the wall? Where do they go?
  Yes. Bits of the car flew every which way – up, down, sideways, forward…

- How does the crash test dummy illustrate Newton's 1st Law of Motion?
  Both the crash test dummy and the bits of the car flying every which way demonstrate Newton's 1st Law of Motion because NL3 says that "objects in motion will stay in motion". An outside force acted upon the car, but not yet upon the crash test dummy and the bits of the car that flew off (besides gravity of course

Adapted from: *www.questacon.edu.au/indepth/collisions/*