

Goal 4

Students will be able to explain
Newton's first law.

Newton's First law

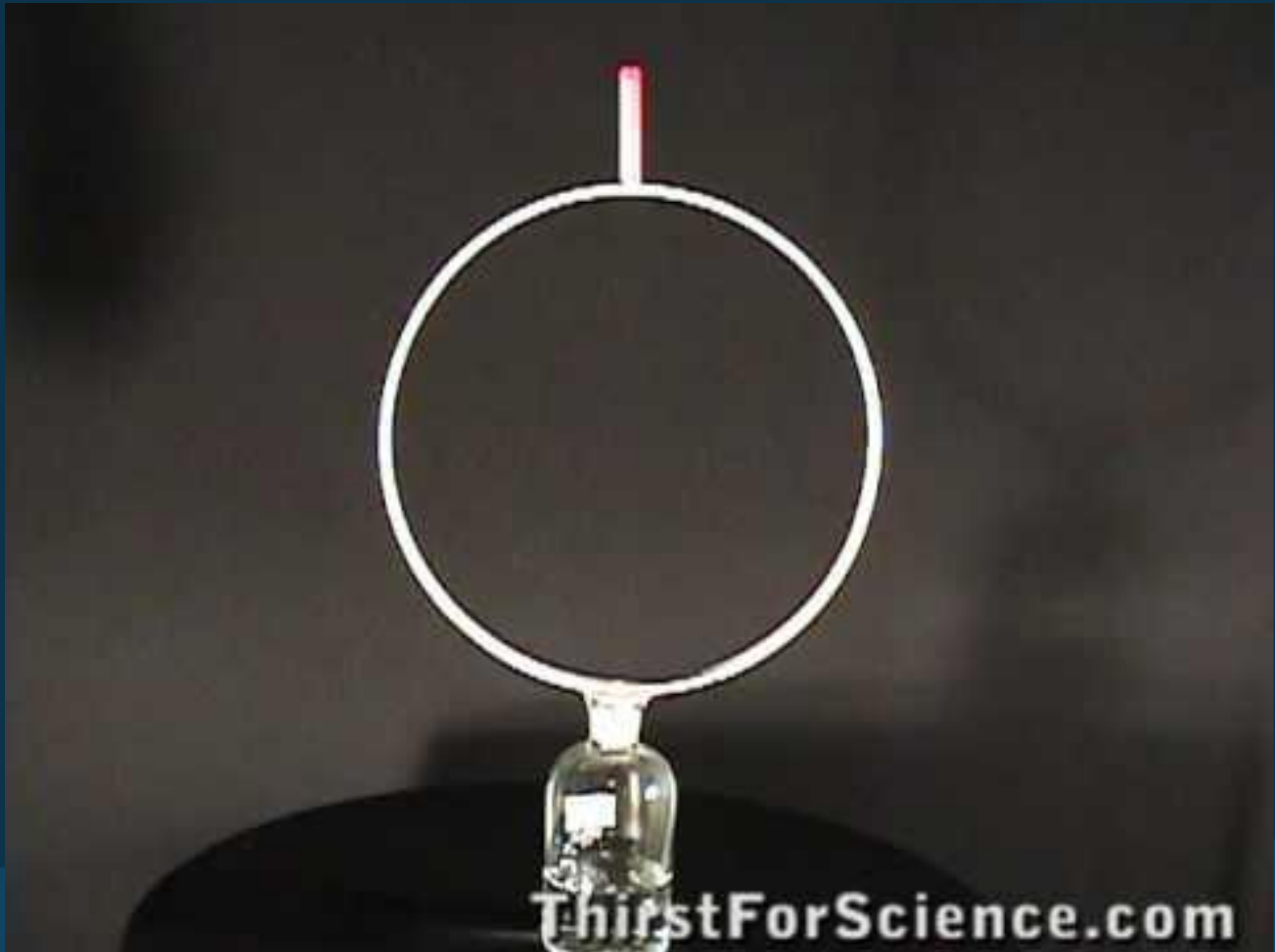


It's because we're moving faster, we have a lot more inertia requiring a lot more outside force

Newton's First law

An object at rest will remain at rest, and an object moving at a constant velocity will continue moving at a constant velocity, unless it is acted upon by an unbalanced force.

Try this at home!



Unbalanced vs. balanced force

Unbalanced

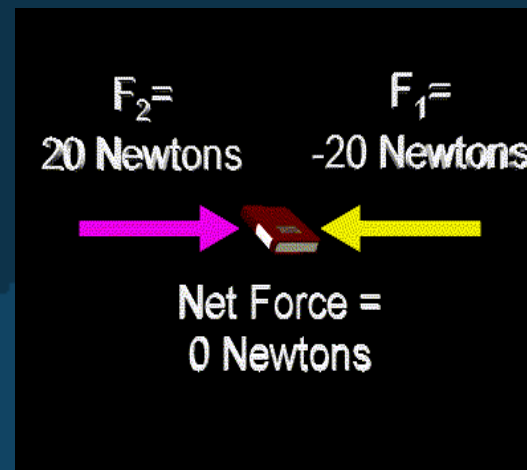
Can cause an object to start moving, stop moving or changes direction.

Result in a net force and cause a change in the object's motion.

Balanced

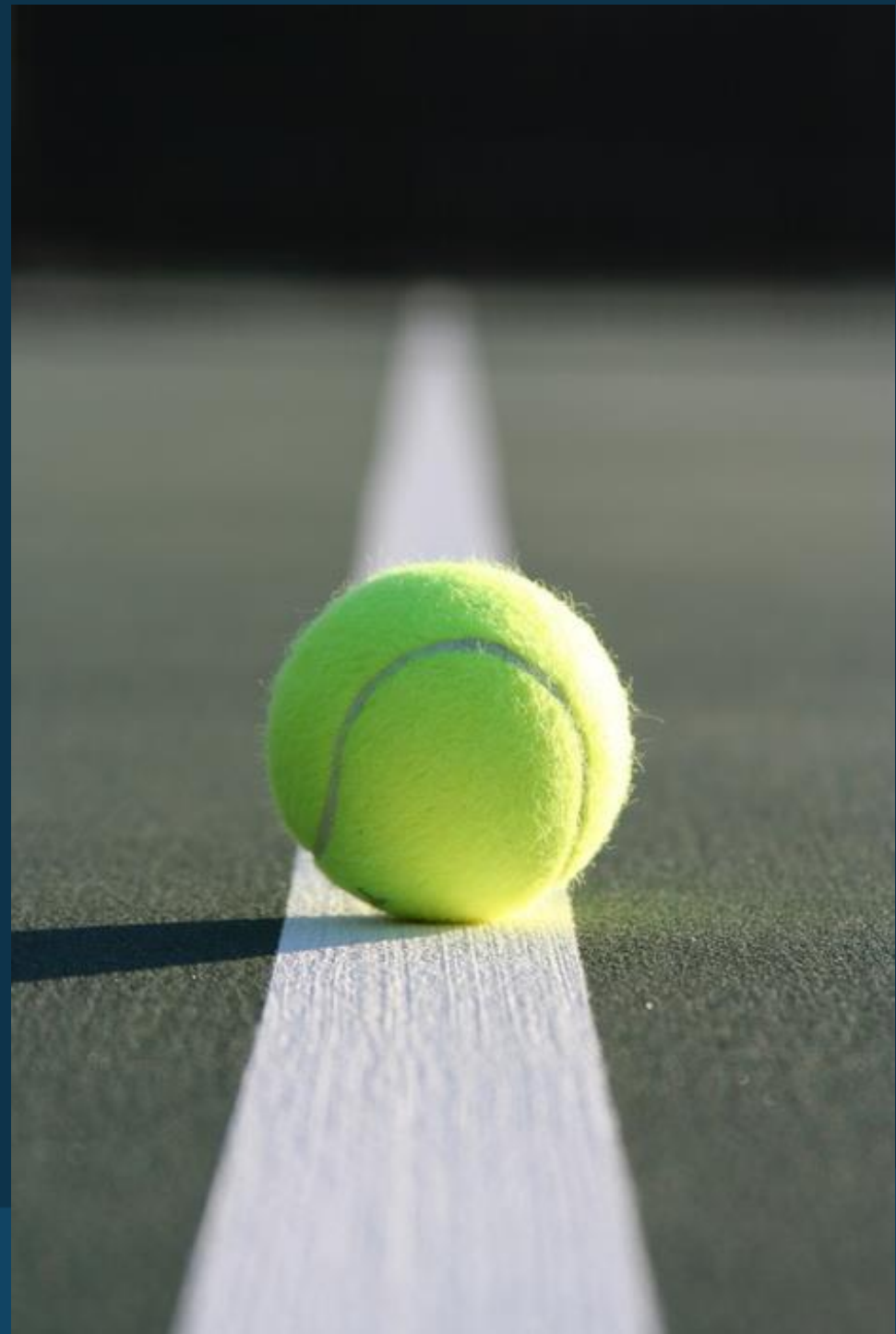
Do not change the object's motion.

Equal force in opposite directions.



At rest

- Object not moving WILL NOT move unless an unbalanced force acts on it.
- Homework will not get done on it's own.
- Your room will not be cleaned on it's own.



In Motion



- Object in motion (velocity) will stay in motion.
- Outside force can change it's speed, velocity, or direction.

What makes things slow down on their own?

Friction

Gravity



Inertia

Concept of resistance to change in motion.

Tendency of an object to resist that change in motion.

Newton's First Law - Law of Intertia

Inertia Depends on Mass

Some objects have more Inertia than others.

Empty aquarium vs. Full Aquarium

The greater the mass of an object, the greater it's Inertia, the greater the force required to change it's motion.

Inertia Depends on Mass



Newton's Law of Inertia



Goal 4

Students will be able to explain
Newton's first law.