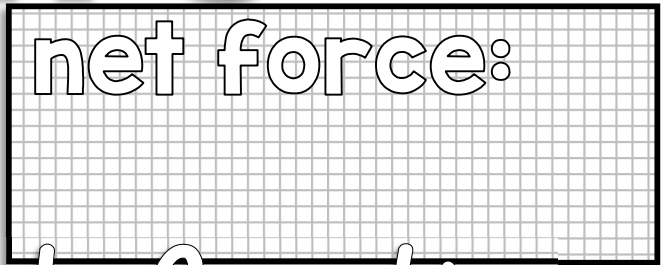


Newton's

1st Law

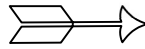
The Law of Inertia

net force:

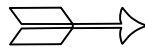


If the net external force on an object is zero, the object's velocity will remain unchanged.

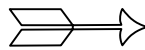
Implications



A non-zero net force will change the velocity.



A net force is not required to maintain the velocity.



External forces change the motion, not internal forces.

True or False?

If an object is stationary, it must have no external forces acting on it.

TRUE

FALSE

If you throw a ball in space the ball will keep going in the same direction at the same speed.

TRUE

FALSE

While sitting in a moving bus you throw an apple up into the air. The apple will land back in your hand.

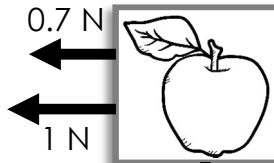
TRUE

FALSE

A bus accelerates forward. If an apple were on the floor of the bus it would move forward.

TRUE

FALSE



Draw additional forces so the apple has a net force of 0 N.

Buckle up!

If you are riding in a car and the speed suddenly decreases...



No seatbelt



With seatbelt