

Newton's 3rd Law of Motion

** REVIEW **

1. Newton's First Law is *The Law of Inertia*:

An object at _____ tends to stay at _____ ,
and an object in _____ tends to stay in _____ .

2. Newton's 2nd Law of Motion: $\mathbf{F = m a}$

- _____ are between at least two things.

Throw a 50 pound punch at a falling tissue – does it receive the 50 pounds of force?

- Every force interaction needs an _____ and a _____.
- Some actions and reactions:
 - runner pushes ground – ground pushes back on runner
 - rocket pushes out gas backward – gas pushes rocket forward
 - person pulls spring – spring pulls back
 - earth pulls down ball – ball pulls up earth

- A rifle kicks back with an equal and opposite force.

If the rifle is 100 times heavier than the bullet, the bullet will accelerate 100 times faster.

- Deeper Meanings ...
 - Every fight needs an action and a reaction. So don't react.
 - Every effect has some cause. Every cause has some effect.
 - You cannot touch another heart without being touched.