

## Newton's Laws Scenarios Worksheet

Identify which of Newton's Laws is most relevant to each scenario AND explain the reason. Reminder:

- 1<sup>st</sup> Law: Law of Inertia
- 2<sup>nd</sup> Law:  $\Sigma F = ma$
- 3<sup>rd</sup> Law: Law of Action-Reaction

1. A firefighter turns on their hose & is knocked backwards
2. It takes less force to move a DVD than a DVD player
3. You have to push a heavy ball harder to get it to move as fast as a small one
4. A soccer ball will not move until a player kicks it
5. more force = more acceleration
6. If air is let out of a balloon quickly, air pushes down & balloon goes up
7. It takes less force to push a bicycle than a motorcycle
8. force = mass times acceleration
9. an object in motion stays in motion unless acted on by an outside force
10. for every action there is an = and opposite reaction
11. A bowling ball hits the pins sending the pins flying for a STRIKE!
12. an object at rest stays at rest unless acted on by an outside force
13. Feet push down on the floor & the floor pushes up at feet as you walk
14. 12 lb bowling ball goes faster down the lane than a 15 lb bowling ball
15. In a plane taking off you feel pushed back into your seat
16. Push a large box & a small box with the same force, the small box will go faster
17. A seatbelt stops you from hitting the windshield if you hit the brakes quickly
18. A boy can throw a football farther than his friend because he uses more force
19. When you push on a door it pushes back with = and opposite force
20. Someone crashes their bike into a rock & is thrown over it to the ground