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| Newton’s 1st Law | An object at rest stay at rest and an object in motion stays in motion, UNTIL, a force acts upon it. |
| force | a pull or push that acts on an object  |
| mass | Amount of matter in an object |
| inertia | the tendency of an object to resist a change in its state of motion—**resistance** |
| friction | A force that act against a moving object—**moving on ice has very little friction, moving on sandpaper has a lot of friction** |
| speed | how fast its position is changing with time at any moment**Average Rate of Speed—speed = distance/time** |
| Velocity | the speed of an object with its direction---**45 mph** due **north** |
| acceleration | a change in velocity---**speed or direction or both**calculate acceleration= force /mass |
| deceleration | When a force causes the speed of an object to decrease (slow down) |
| rate of change | How often something is changing |
| Relationships | **acceleration and force** have a **direct relationship**—when you increase the force, you increase the acceleration. |
|  | **acceleration and mass** have an **inverse relationship*—***when increase the mass, you decrease the acceleration. |
| Newtons | Is the unit of force |
| balanced forces | when forces of an object cancel one another out |
| unbalanced forces | where a certain force is either only partially canceled or not canceled at all by other forces |
| Newton’s 2nd Law | The greater the force the greater the acceleration. |
| Newton’s 3rd Law | For every action there is an equal and opposite reaction (like cause and effect) |
| action | when 1 object applies a force to a 2nd object |
| reaction | the force the 2nd object returns to the 1st object |
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| gravity | the attraction between the mass of the Earth and the mass of an object |
| weight | it is the force of gravity on any objectweight=mass X 9.8 |
|  |  |
| matter | Anything that has mass and takes up space |