

Newton's 1st Law and Forces

Force - _____

_____ Force – when an _____ touches the system (stuff you are concerned about) and _____.

_____ Forces – A force that can act on the system _____.

Ex. Gravitational force and magnetic force.

Force is measured in _____ (_____)

** There needs to be an _____ (specific and identifiable _____) and a system on which the force is exerted.

_____ - _____ diagrams – Use _____ to represent _____ that act _____ your _____.

1. Represent your system with a _____ ()
2. Draw any field forces (you will usually only have gravitational) and _____
3. Draw any contact forces and label them
 - a. Separate ALL _____ forces into its _____ & _____ component when needed

Common Forces

Force	Symbol	Definition	Direction
	F_f		_____ to the _____ & the _____ direction of motion
	F_N		_____ to & _____ from the _____

	F_{sp}		The _____ that the spring was _____
	F_T		_____ from the _____ & _____ to the string, rope, or cable.
	F_g or w		_____ toward the center of the Earth

** if given mass (kg), multiple by _____ to get _____ in Newton's**

Newton's 1st Law – An object that is at rest will remain at rest, and an object that is moving will continue to move in a straight line with constant speed, if and only if the net force acting on the object is zero.

_____ – Newton's 1st law is sometimes called the law of inertia. Inertia is _____
_____. It is an object _____ to a _____ in motion.

When the _____ is at _____ it will _____

When an object is moving it will _____ to move at that _____

(speed and direction)

**** MASS is a measure of an objects inertia****

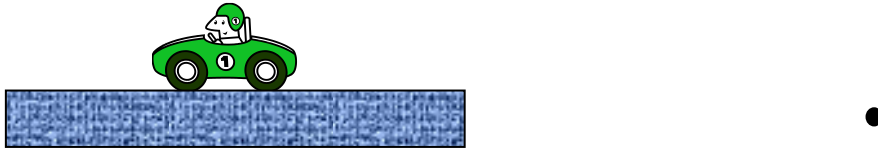
_____ – When the _____ are _____

to _____ then the object is in equilibrium and that means the objects _____

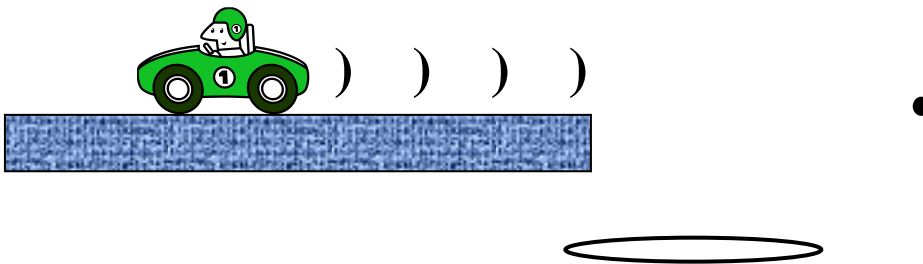
_____.

**** If the object's forces don't equal zero than the objects motion will change****

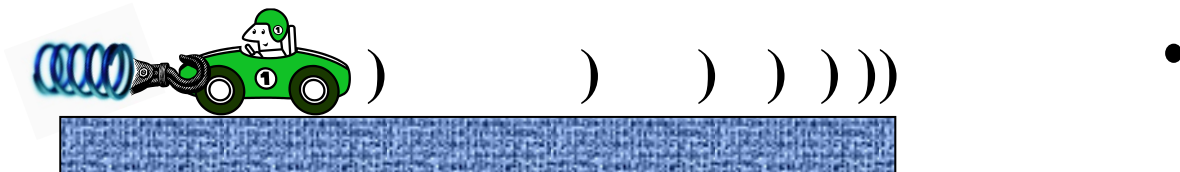
Example 1 – A toy car is sitting on a table not moving.



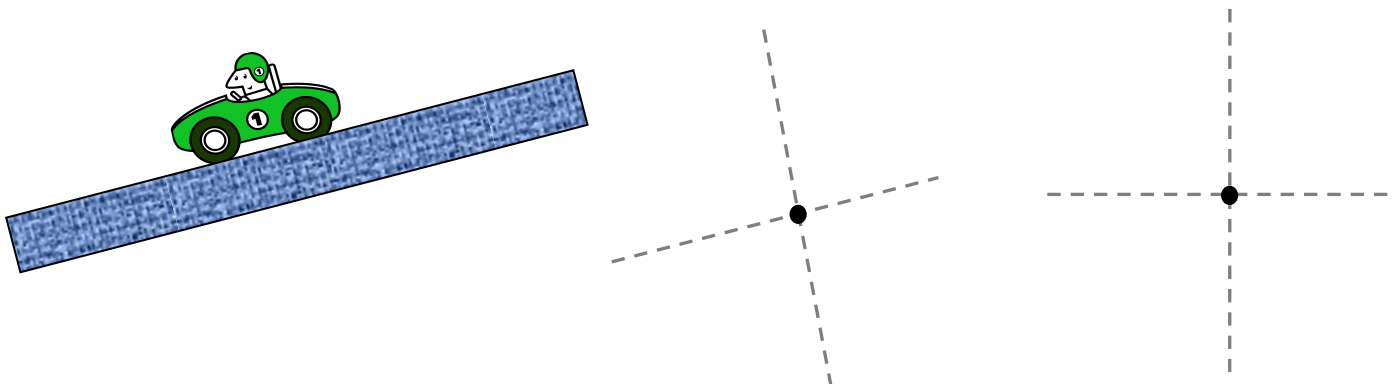
Example 2 – A toy car is coasting on the counter at a constant velocity assuming air resistance is negligible.



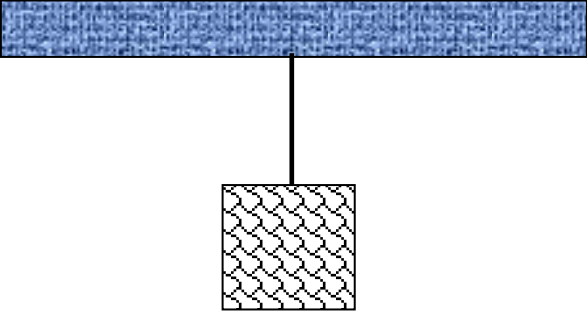
Example 3 – A toy car is moving because a spring has been stretched out and the car was then released. Assume there is friction in this case.



Example 4 – A toy car rolling down an inclined ramp. Assume there is friction

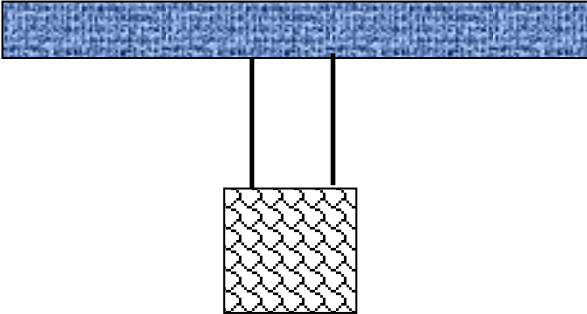


Example 5 – A box is hanging from a string



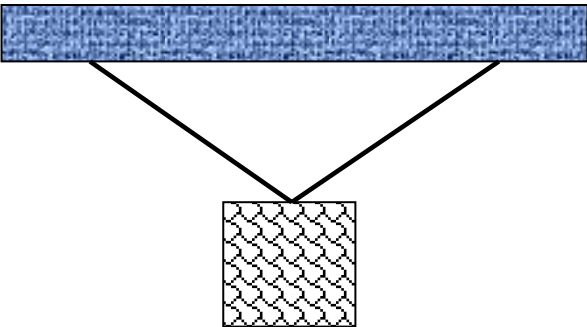
•

Example 6 – A box is hanging by two strings



•

Example 7 – A box is hanging by one string



•