

Forces

A. Definitions:

1. Force: a _____ or a _____
2. Mass: a measure of how much _____; measured in _____ or _____, which most people do not realize because they are not scientists and so they think they are talking about weight
3. Inertia: an object's _____; more _____ equals more _____
4. Friction: a force that works in the _____ direction to an object trying to _____ across a surface
5. Gravity: a force of _____; anything with mass _____ other objects with mass and it always _____ and never _____; s_____ and d_____ affect the power of this force
6. Center of mass: the place in an object where all of the mass is b_____
7. Weight: the measure of the force of _____ acting on an object; measured in _____, which most people do not say because they are not scientists
8. Air resistance: the force applied by air on _____ objects; it _____ objects down; larger _____ area creates more air resistance

B. **First Law of Motion**: an object at _____ tends to stay at _____, and an object in _____ tends to stay in _____ unless acted upon by an outside _____

1. A force can cause three actions:

- a. _____
- b. _____
- c. _____

2. There are two types of forces:

- a. _____
e.g. _____
- b. _____
e.g. _____

C. **Second Law of Motion:** an _____ forces changes an object's _____. The change in _____ depends on the object's m_____ and the size of the force.

1. Balanced forces:

a. equal in _____

b. opposite in _____

2. Only _____ forces will cause a change in _____.

D. **Third Law of Motion:** for every _____ force, there is an _____ and opposite _____ force.

1. Forces act in _____.

2. Action and reaction forces are applied to _____ objects.

3. Therefore, action and reaction forces are not _____, because they are not acting on the _____ object.

4. An _____ force causes a change in _____ in one of the objects.

E. **Draw:** Draw and label each example, showing a red arrow for the action force and a blue arrow for the reaction force.

1. A bird flying

2. A rocket taking off into space

3. A ball being caught

4. A canoe being paddled

5. A parachute descending to the earth