

Newton's first law

When an object has no net force acting upon it, the object will remain in rest, or will keep a constant velocity.

An object in rest, remains in rest, unless there is a net force acting upon it.

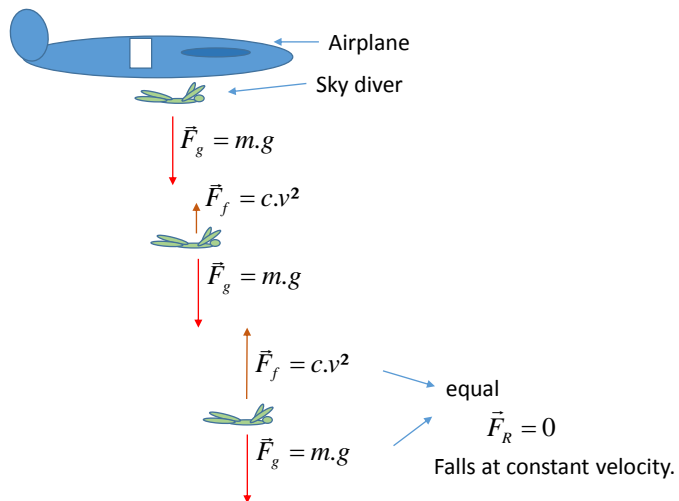
An object with a constant velocity on a straight trajectory, remains with that constant velocity on that straight trajectory for as long as there is no net force acting on it.

A space probe on its way through the solar system: keeps going

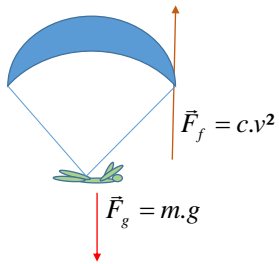
In a frontal collision will the body of the driver keep its velocity and will go through the front wind shield: that is why we have to wear a safety belt.

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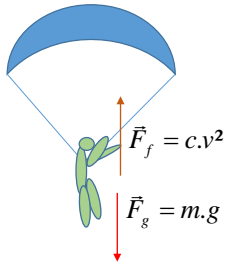
Example: a sky diver



Newton's first law



F_r upwards!
Slows down



Sky diver slows down $\rightarrow F_f$ reduces

Until forces are equal again

We have again constant velocity.