Physics with Synno – Motion-2 – Lesson 10

M.3.2 States of Motion

There are three states of motion, they are:

1) object at rest
2) object travelling at constant velocity
3) object undergoing acceleration

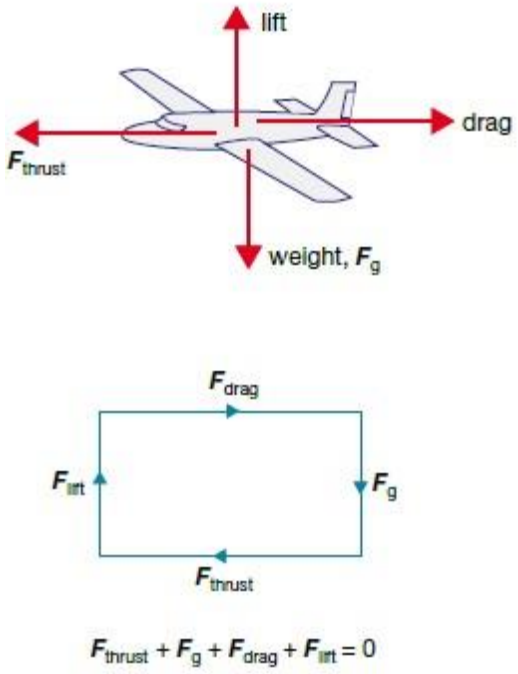
In dynamics we will study what causes these states of motion.

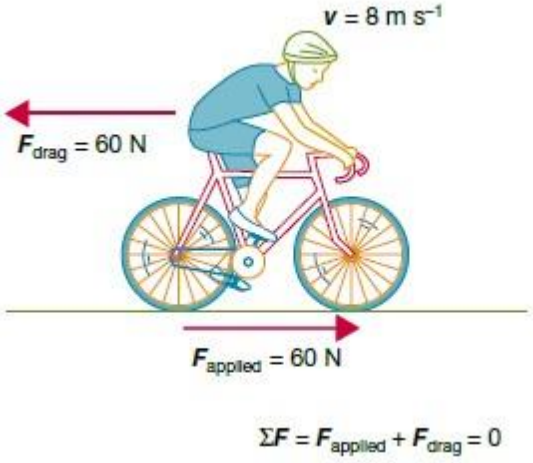
M.3.3 Galileo's Law of Inertia (Newton's 1st Law)

Newton further developed the ideas of Galileo to produce the first law of motion. Which states:

An object will remain at rest or in uniform motion in a straight line unless acted upon by an unbalanced force.

Note 1) this applies in any particular direction.





2) if F = 0, v = constant (may be non zero)

Example

During a car accident, a passenger travelling without a fastened seatbelt may fly through the windscreen and land on the road. Explain, using Newton's first law of motion, why this will occur.

Something along the lines of
Newton's First law says an object will continue its motion unless acted on by an unbalanced force. As the passenger does not have a seat belt on, when the car stops there is no force to change the motion of the passenger and the continue moving. Hitting the dashboard or flying through the window.

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