

(S2) Newton's First Law of Motion:
Life and Death before and after
Seat Belts

TODAY'S
DATE

E.Q. What is Newton's First Law of Motion?

What is Newton's first law of motion?

Newton's first law of motion
(or law of inertia) — states that an object at rest stays at rest, and an object in motion stays in motion in a straight line with constant speed unless acted upon by a net, external force

What is inertia?

Inertia — the natural tendency of an object to remain at rest or to remain moving with constant speed in a straight line

Newton's first law has 3 parts: (1) objects @ rest stay @ rest (2) objects in motion stay in motion in a straight line w/ constant speed (3) parts 1+2 are only true when the net force, or total of all forces, on the object is zero

What is force?

force → an interaction between two objects that can result in an acceleration of either or both objects

What is pressure?

pressure → force per area where the force is normal (perpendicular) to the surface; measured in N/m^2 (newtons per meter squared) or Pa (pascals)

$$P = \frac{F}{A}$$

where $F = \text{force (N)}$

$A = \text{area (m}^2\text{)}$

$P = \text{pressure (N/m}^2\text{)}$

Pressure is defined as force per unit area.