**Weightlessness?!**

When we say *“weightless”* what we generally mean is “*in freefall*”.

According to the formula

W = m×g

Where W= weight

m = mass

g = gravitational field strength

.. To be weightless you must travel to a region where there is no gravitational field. Even in space, where spacecraft travel, ‘g’ has a value greater than zero. An example of what actually happens is when a car goes over a bump in the road too fast and takes off. Both the car and the occupants fall back to the road at the same rate and so the occupants momentarily feel ‘weightless’ because they are not being supported by anything. Being in contact with the ground makes us aware of our weight. In a spacecraft the spacecraft and the occupants are falling to Earth at the same rate so they feel weightless even though there is a gravitational force acting on them. The astronauts are actually in freefall.

**INERTIA**

Inertia is the tendency of an object to remain in a state of rest or uniform speed unless acted upon by an unbalanced force. That is, it is the resistance of an object to motion. Measurement of inertia is a way of measuring mass.