IGCSE Coordinated Science: Mass and Weight

Mass and Weight

1. Difference between Mass and Weight

- Weight is the gravitational pull on an object measured in Newtons because it is the amount of the force. This is different on different planets because the gravitational pull is different because of the different mass of the planet.
- Mass is the amount of particles in a substance. This is the same regardless of how much gravitational pull is applied to the object because the amount of particles of in an amount of substance.

The weight is the gravitational constant multiplied by the mass.

2. Demonstrate understanding that mass is a property that 'resists' change in motion.

This is the concept of inertia. If a force is applied to an object, it will not immediately reach a high speed because it requires time to accelerate, as shown by the formula F=ma. If the force is constantly applied then there is a constant acceleration. However if the force is not constant and only applied in an instant then there will be an instant of acceleration and then it will take time for the object to speed up.

3. Know that the Earth is the source of a gravitational field.

Gravity is an attractive force created by the presence of mass. Any object with a mass with have a gravitational field. The more mass an object has the stronger the gravitational energy it holds.

4. Describe, and use the concept of, weight as the effect of a gravitational field on a mass.

As mentioned before the weight of an object is the gravitational force applied onto it multiplied by the mass.

$W = m \times g$
$(N) = (kg) \quad (m/s^2)$