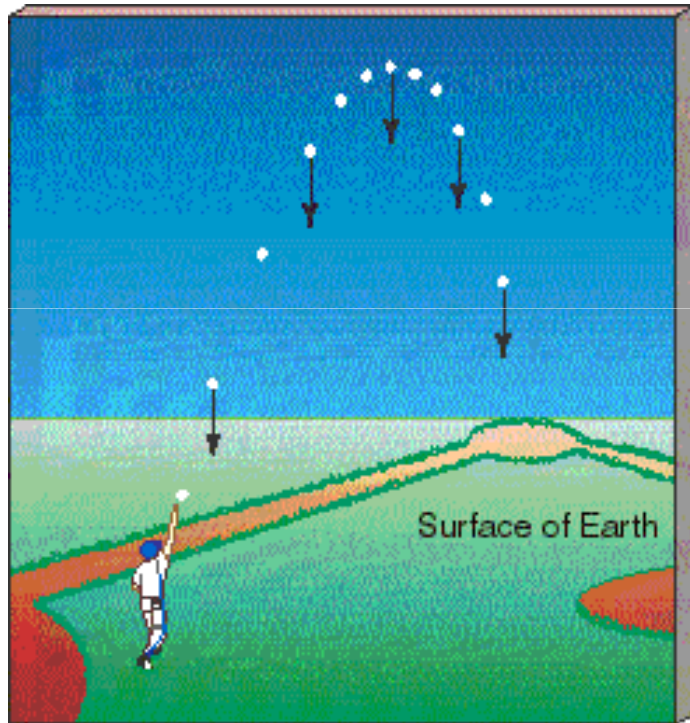


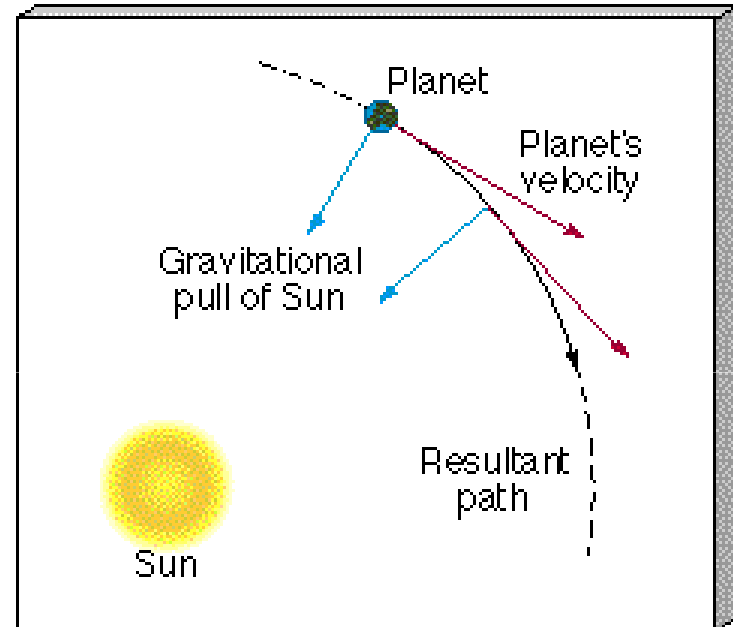
Mass, Force and Gravity

- Mass – Amount of stuff (atoms/molecules) in an object. Measured in kg.
- Force – Measures the gravitational pull on something. Measured in N (newtons)
- Earths Gravitational Field Strength – 10N/kg.
(The gravitational field strength at the surface of the Earth produces a force of approximately 10 N on every mass of 1 kg)

Gravitational field



Earth's gravitational force makes the ball move down towards the centre of the Earth.



Sun's gravitational force makes the Earth move in an orbit around the Sun.

Putting it all together

- The apple has **mass (kg)**
- It gets pulled to the ground at a **force** (this can be measured in Newtons)
- The earth's **gravitational field strength** pulls the apple towards it



Now...

- Weight – Is a measure of force pulling something to the ground due to gravity

Hang on a minute...that sounds very familiar...

- **Weight = Force**

- Weight is measured in N (newtons)

Putting it all together

- The apple has **mass (kg)**
- It gets pulled to the ground at a **force** (this can be measured in Newtons) = **WEIGHT**
- The earth's **gravitational field strength** pulls the apple towards it



How can we calculate weight?

- We can use an equation we already know to help us:
- g (gravitational field strength) = force / mass
- If Force = Weight
- Weight = Mass x g (gravitational field strength)
- **Memorise: $W = m \times g$**

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