Newton Law of universal gravitation

$$F = \frac{G m_1 m_2}{r^2}$$

Looks at force of gravity between two masses

F ≠ gravitational force you are working out
"Force due to gravity"

$m_1 m_2$: are masses of two bodies

G : Gravitational Constant

r : Distance between the masses

∴ only Constant in formula is G, which is:

6.67×10^{-11} [very tiny]

Eg. mass of two object:

i) Object 1: apple: 0.218

ii) Object 2: Orange: 0.17

Distance between them = 0.15

$$\therefore F = \frac{6.67 \times 10^{-11} \times 0.218 \times 0.17}{(0.15)^2}$$

$$= \frac{6.67 \times 10^{-11} \times 0.0706}{0.0225}$$

$$= \frac{2.47 \times 10^{-12}}{0.0225}$$

$$F = 1.1 \times 10^{-10}$$

$\Rightarrow$ force of gravity between apple and orange, is equivalent to the weight of grain of pollen

$\Rightarrow$ very small