

Weighing the Earth



Knowing the radius of the Earth and the Force of attraction the Earth has on a mass then the mass of the Earth can be found.



Setup Newton balance.

Attach a known mass.

The weight of the object in newtons is equal to the gravitational force of attraction the Earth has on the mass

$$F = G \frac{Mm}{r^2}$$

Rearrange the gravitational force equation for M, the mass of the Earth.

Weight = Force F	
mass m	
G	$6.67 \times 10^{-11} \text{ Nm}^2\text{kg}^{-2}$
radius of Earth	$6.4 \times 10^6 \text{ m}$



<https://goo.gl/wCQQRp>

Calculation