

In this experiment we are going to demonstrate how to measure Body Mass Index.

Health workers use body mass index or BMI to assess if a person has a healthy weight.

BMI is calculated by measuring the height and mass of a person and then using the equation:

BMI equals mass in kilograms divided by height in metres squared.

To calculate someone's BMI, we need:

Scales

A stadiometer, or we can also use two metre sticks taped to wall if a stadiometer is not available.

Ask the volunteer to take off their shoes and stand on the stadiometer and measure their height.

Remember the height needs to be in metres, so convert centimetres into metres.

The height is 165 centimetres.

Which converts to 1.65 metres.

Ask the volunteer to stand in the scales.

Take a reading of their mass in kilograms.

The mass is 64.8 kilograms.

To calculate BMI use:

BMI equals mass in kilograms divided by height in metres squared.

So that is 64.8kg divided by 1.65 metres squared.

Which equals a BMI of 23.8.

This result can be compared to a BMI chart.

We can see the range of healthy BMI here and we can see that this person has fits into the healthy range.

Typically a physically healthy adults BMI range is between 20 to 25 however it should be noted that there are limitations of this calculation.

The BMI cannot tell the difference between excess fat, muscle or bone.

The adult BMI does not take into account age, gender or muscle mass.

This means very muscular adults and athletes may be classed "overweight" or "obese" even though their body fat is low.

Adults who lose muscle as they get older may fall into the "healthy weight" range even though they may be carrying excess fat.

Pregnancy will also affect a woman's BMI result.

BMI will go up as a woman's weight increases while her baby grows.

Pre pregnancy mass should be used when calculating BMI.

Apart from these limitations, BMI is a relatively straightforward and convenient way of assessing someone's weight.