

Lesson One: Measuring and Converting Linear Quantities

Many things in the world can be **measured** in some way: your heart rate (in beats per minute), time (in seconds, minutes, hours or all three), your height, your age, your shoe size, or the distance between two cities on a map. The common element to all of these measurements is that they can all be expressed as a **single number** – you don't need more than one number to describe most things that we measure.

Anything that can be measured using a single numeric value is called a **linear quantity** (or a **linear measurement**). They are called linear because you can measure them in a 'straight line'. Some measurements (like your height) you would find with a ruler (literally a straight line), or you could place the measurement on a number line to compare it to other like measurements.

Linear quantities are also called **one-dimensional** (or 1D). Their only 'dimension' is the single measurement needed to express that quantity. (Your height for example: it might be 172 cm – the only 'dimension' of this measurement is the height itself.)

This lesson will work with these linear measurements. You will learn how to take a measurement, and convert that measurement to alternate units of measurement.

Example 1: Measuring Using a Ruler

Use the ruler provided below to measure the length of the picture of a bird, from the end of the tail feathers to the tip of the beak in both centimetres and inches. Guidelines have been drawn to help you.

