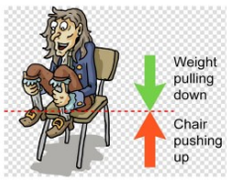
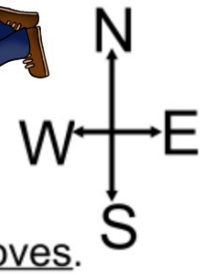


Science Grade 8
Motion & Stability



Direction - is the path along which someone or something moves.

Distance - is the amount of space between two objects or points

- must be measured in mm, cm, **m**, km, ...

Time- is the duration between two events

- measured in **seconds**, minutes or hours

Let's go out and see how much time it takes to walk 1 km

Try This
Activity

Measuring by Hand

Most measurement systems originated when the human body was used to help determine distances. After all, everybody had one! This practice is still very useful when we do not have access to a ruler or tape measure.

- Use a metric ruler, metre stick, or tape measure to determine the answers to the following questions. Memorize the following answers for your own body.

(a) The width of which of your fingers or fingernails is closest to 1.0 cm?

(b) Which part of your hand (width or length) is approximately 10 cm?

(c) What is the maximum span of your spread hand (i.e., width from thumb tip to little-finger tip) in centimetres?

(d) A horizontal distance of 1.0 m is from the tip of your fingers on your outstretched arm to where on your body?

(e) How many of your foot or shoe lengths (plus a fraction, if necessary) equals 1.0 m (**Figure 3**)?

(f) What are the lengths of your natural and stretched strides in metres? Can you stride 1.0 m?

- Now use the answers to the above questions to determine the length, in centimetres or metres, of the following objects. Measure each object at least three times, using different parts of your body each time.

(g) What is the length of your pencil or pen?

(h) What is the length of a page of paper?

(i) What is the length of your desk or table?

(j) What is the length of your room?

Did you always get the same lengths for each object? Why, or why not?

(k) Repeat questions (g)–(j) using a metre stick. Compare the new measurements with those you obtained by using your body. Account for any differences. Which are likely to be more accurate?

- What are the likely maximum and minimum distances you could conveniently measure, using

(l) your finger/fingernail width?

(m) your hand span?

(n) your foot/shoe length?

(o) your stride?

Figure 3
How many of your foot lengths make up 1.0 m?