Name: _____

How speedy are you?
SPH4C

Question: What are your average walking and average running speeds in m/s and km/h?

Prediction: My average walking speed will be _____ m/s or _____ km/h.

My average running speed will be _____ m/s or _____ km/h.

Materials: metre stick
stopwatch
masking tape

Procedure:

1. Use the metre stick to measure a straight-line distance of 10 m down the hallway. Use masking tape to mark the starting and ending points.

2. Start walking behind the start line. When you reach the start line, start the stopwatch. Continue walking at the same constant pace. When you reach the end line, stop the stopwatch. Record the time in Table 1.

3. Repeat Step 2 three more times. Calculate your average time to walk 10 m. (Add all four time measurements and divide by 4.)

4. Start running behind the start line. When you reach the start line, start the stopwatch. Continue running at the same constant pace. When you reach the end line, stop the stopwatch. Record the time in Table 2.

5. Repeat Step 3 three more times. Calculate your average time to run 10 m.

Observations:

Table 1: Time to walk 10 m

Trial	1	2	3	4	Average
Time (s)					

Table 2: Time to run 10 m

Trial	1	2	3	4	Average
Time (s)					

Calculations

Use your average time to walk 10 m to calculate your average walking speed:

$$v_{walk} = \frac{\Delta d}{\Delta t_{walk}} = \frac{10\,m}{\square\,s} = \square\,\frac{m}{s}$$

Use your average time to run 10 m to calculate your average running speed:

$$v_{run} = \frac{\Delta d}{\Delta t_{run}} = \frac{10\,m}{\square\,s} = \square\,\frac{m}{s}$$

Convert these speeds to km/h:

$$v_{walk} = \square\,\frac{m}{s} \times \left(\frac{1\,km}{1000\,m}\right) \times \left(\frac{60 \times 60\,s}{1\,h}\right) = \square\,\frac{km}{h}$$

$$v_{run} = \square\,\frac{m}{s} \times \left(\frac{1\,km}{1000\,m}\right) \times \left(\frac{60 \times 60\,s}{1\,h}\right) = \square\,\frac{km}{h}$$

Discussion:

What were your sources of experimental error in this activity (<u>not</u> things you did wrong but things beyond your control, e.g., reaction time when pressing the stopwatch)?

_____

_____

_____

Conclusion: My average walking speed was _____ m/s or _____ km/h.

My average running speed was _____ m/s or _____ km/h.