Working out someone's height from their footprints

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- Take your shoes off, but keep your socks on.
- Stand on a piece of paper and get a partner to draw round your feet.
- Now swap and do the same for them.
- Measure how long your footprint is.
- Now get a partner to measure how tall you are and then swap and do the same for them.
- Write the measurements in the tables below.

Foot measurements

Left foot (length in mm)	Right foot (length in mm)	Average foot length To get the mean, add your foot measurements together and then divide by 2
e.g. 186mm	e.g. 188mm	186 + 188 = 374 $374 \div 2 = 187mm$

Height measurement and ratio

Height (in mm)	Average foot length (in mm)	Divide your height by your foot length to get the ratio
e.g. 1430mm	e.g. 187mm	$1430 \div 187 = 7.6$

- Your teacher will gather everyone's results and agree the typical ration of height to foot for your class.
- Use the ratio to work out how tall the people at Laetoli were. For example, if the typical height to foot length ration for your class is 7 to 1, multiplying their foot length by 7. So if the large Laetoli footprints are 173mm, then multiply the 173 by 7 to get the person's height in millimetres, e.g. 1211mm.

- Divide this measurement by 10 to get the height in centimetres, e.g. 121.1cm.
- Divide this measurement by 100 to get the height in metres, e.g. 1.21 m.
- If you want to know how tall the person is in feet and inches, divide the height in centimetres by 2.4, e.g. 121 ÷ 2.4 = 50 inches. Now divide 50 by 12 to get 4 foot 2 inches.
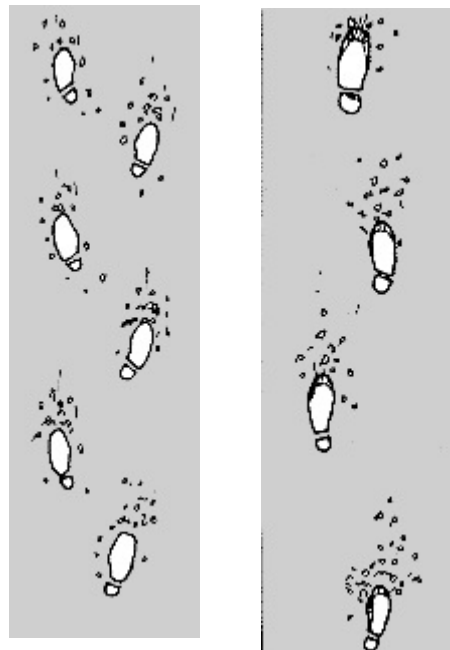
Working out how fast someone was going from their stride
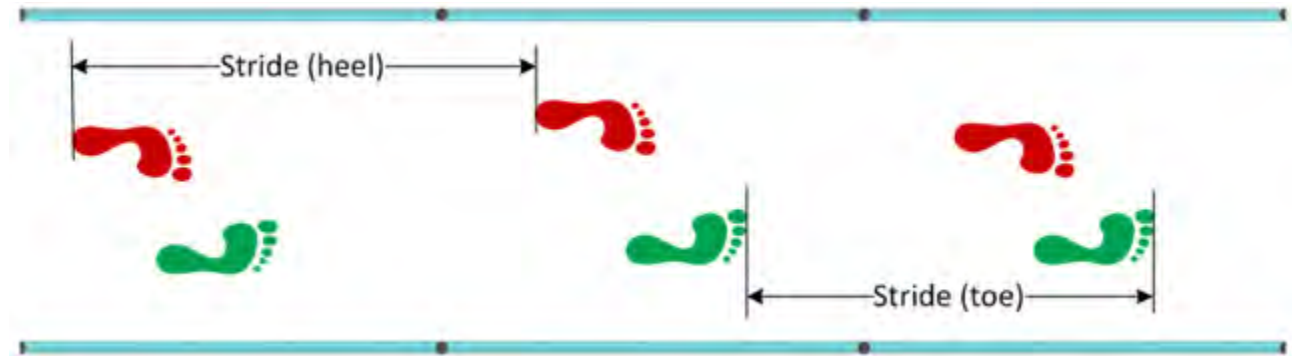
The stride is the length of two steps. You can measure someone's stride by measuring from heel to heel of the same foot, or toe to toe of the same foot.

If the stride is longer, the person is going faster.

Which of these footprints shows someone running?

To work out how fast they were going, you need to measure the stride of the Laetoli footprints.

Footprint	Footprint length	Hip height (4 x footprint length)	Stride measurement	Stride/hip height = speed ratio	Walking, trotting or running?
Big ones	e.g. 30cm	e.g. 120cm	e.g. 60cm	e.g. 0.5	Walking
Little ones					

If the stride/hip height ratio is less than 1.0, the person was WALKING.
If the stride/hip height ratio is between 1.0 and 1.9, the person was TROTTING.
If the stride/hip height ratio is 2 or above, the person was RUNNING.