

Measurement At Home Vitruvian People



Are you taller or wider?

- ❖ Was an ancient Roman architect right about human proportions?
- ❖ Does your 'fingertip to fingertip' width = your height?
- ❖ If you measure more than once, do you get the same value?
- ❖ How much taller are you after lying down for 15 minutes?

Estimated time: 20 minutes
No experience needed

Instructions

Watch the video ([YouTube: SA9Csx9N6bo](https://www.youtube.com/watch?v=SA9Csx9N6bo))

1. Clear a square space on the floor next to a wall that is about your height wide and long.
2. Lie down flat with your bare feet flat on the wall and place an object like a book to mark the top of your head on the floor. Use two more objects to mark the distance between your fingertips as far apart as you can get them.
3. Stand up and measure the height and width you just marked out.
4. Repeat the experiment three more times and find the average and range of each measurement type.
5. Calculate the ratio of the two measurements. This is the average height divided by average width.
6. Try repeating the measurement after lying on your back on the floor for 15 minutes to see if your spine has shrunk.
7. Results received in the NPL webpage by end 15 July may appear in our report which will be on the webpage from 20 July.

#MeasurementAtHome
npl.co.uk/measurement-at-home

Equipment required

- square floor space at least your height in width/depth next to a wall
- Three objects (like books) to mark positions on floor
- ruler or tape measure
- paper and pen/pencil to write down results
- calculator to find averages and ratio

Risks

- ❖ Make sure other people are aware you are lying on the floor as part of an experiment.

SI measurement units

- ❖ metre (m) for length

Challenge Topics

Measurement Science, Maths

Thoughts, tips and information

- ❖ By how much do your measurements vary (and why?)
- ❖ Does your height change after lying down for 15 minutes? How long do you need to stand up for your spine to shrink?
- ❖ With age, the proportions of head size to height, and eye size to skull height change significantly.
- ❖ The Vitruvian Man is a drawing made by Leonardo da Vinci in about 1490. It has notes on it from the Roman architect Vitruvius.

Measurement	Height (cm)	Width (fingertip to fingertip) (cm)
1		
2		
3		
4		
Average	H=	W=
Spread (+/-)		
Ratio average H/W		
Notes (e.g. after standing up or lying down)		

Adult direction or supervision is required. All experiments are carried out at your own risk.
For more experiments, visit [NPL Measurement at Home](https://npl.co.uk/measurement-at-home).