

Vitruvian Man Theory– truth or myth?

(5th and 6th Class)

- Resources:** Measuring tape, string, record table (see below), calculator (optional)
- Strands:** Representing and interpreting data, length-measuring; decimals, ratio.
- Activity:** Instruct the students to work in pairs and measure both their height and their arm span(measure from finger tip to finger tip and from head to foot). Collect the student data by writing it on the board. Pupils, in pairs, copy the data to their worksheets then count the average and the ratio. Draw the graph (height y-axis, arm span x-axis) and analyse it.

- Questions:** What other types of data must be collected? (e.g. gender, age)
- How many pupils have the exact Vitruvian proportions?
- How many children do not have the Vitruvian proportion? Why don't they?

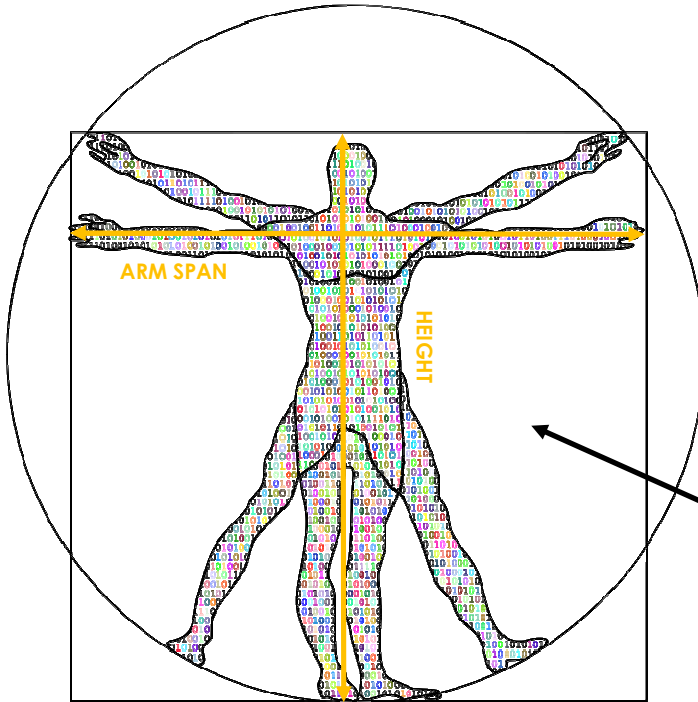
Challenge Questions:

- Does the number of pupils measured influence the result of the study?
- How many pupils have above or below average arm span/ height?
- Can pupils identify the average arm span and average height on the graph?

Teacher's note:

1. Discuss whether Vitruvian proportions are possible.
2. Investigate whether there is a strong relationship between arm span and height.
3. If you know your height, can you predict your arm span?
4. Discuss if arm span can be used as an ideal representation of height. Could this ratio have practical application? For instance, in a clinical setting, where a patient is confined to a wheelchair and unable to stand to have their height measured.

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This is Leonardo da Vinci's drawing of the Vitruvian Man—a well known symbol of human proportions.

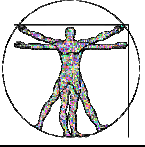
These are some of the proportions given for the Vitruvian Man:

- The span of the man's arms is equal to his height.
- The distance from the top of his head to the middle of his chest is one-quarter of his height.
- The distance from the middle of his chest to the top of his leg is one-quarter of his height.
- The distance from the top of his leg to the bottom of his knee is one-quarter of his height.

Let's examine your arm span to height ratio. Your arm span is the distance between the middle fingertips on each hand when you stretch your arms out as far as they can reach. How do you think your height compares with your arm span? Would it be similar, longer or shorter?

$$\frac{\text{HEIGHT}}{\text{ARM SPAN}} = 1$$



	Arm Span (cm)	Height (cm)	Age	Gender	HEIGHT ARM SPAN
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
Average:					

MATHS FOR ALL



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