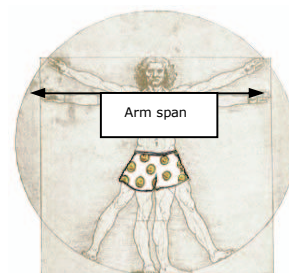


Are you a masterpiece?

Leonardo da Vinci (1452-1519) was a scientist and an artist. In 1492 he drew the picture on the right. Can you see how the man is standing in a circle and a square? Leonardo thought that the span of someone's arms is equal to their height. Why do you think he was interested in working out body proportions?

Do you think Leonardo's theories still work today?



Problem ?

Is Leonardo's theory that a person's height equal to their arm span true for students in 2005?

Plan



How would you answer the question now, before you gather the data? Remember to justify your answer.

To investigate this question you need to have a plan. Write your plan in your book. Here are some questions to help you think of some the things to include:

1. What factors do you think should be explored when investigating this theory?
2. What data will you need to collect to carry this investigation out?
3. Who will you collect data from?
4. How will you collect the data?
5. Are you a masterpiece? Make a prediction now, before you gather your data.
6. Who would be interested in your conclusion?

Data



How will you record the data when you collect it? You might like to record your data in a table like the one below.

Name	Factor 1:	Factor 2:	Arm span	Height
Student 1				
Student 2				

Analysis



Have a look at the table of data.

1. Do you wish to change your prediction?
2. Is there any data which looks unusual and if so what may account for this?
3. Is there anyone in your sample who is a masterpiece and how can you tell?
4. Why do you think some people have slightly different arm spans compared to their heights?
5. Draw a graph of your data. You might have to draw a few graphs to show all the information.
6. Have you graphed one measurement against another measurement? What do you notice about the data?
7. How could you describe the shape of the plotted data?
8. Draw a line of best fit. What is the slope of the line?
9. What does this tell you about the data?
10. Are there differences between groups of students (male/female, ethnicities, etc)?
11. Do you think the results would be the same for other groups of people? Why?

In your books record your thoughts about your graphs using these sentence starters:

I noticed that...

I wondered if... (What do you wish you had information on?)

Have another look at Leonardo's drawing. What other body proportions are the same? What could you investigate next?

Conclusion



In your books answer the question in the problem section.

Remember to give reasons based on what you found out in your investigation.

You might like to use some statistical language in your conclusion. Here are some phrases that might be useful: outlier, evidence to suggest, probably, likely, normal/skewed, slope of the graph.