

Support Sheet for the 'ARE YOU A MASTERPIECE' activity.

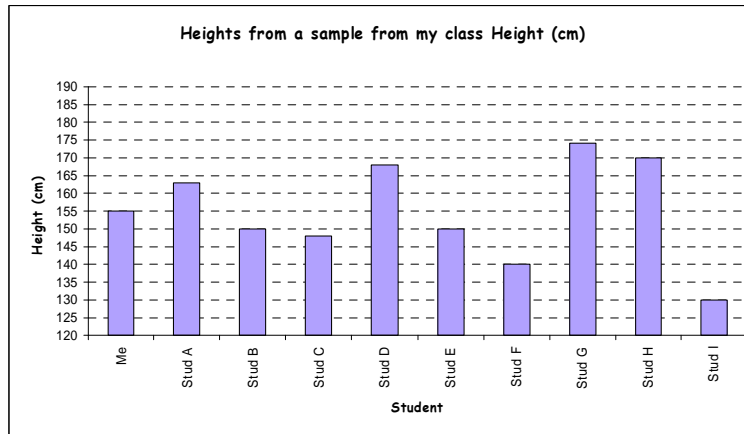
Ratio: The relation between two values: *The ratio of 8 to 5 is written 8:5 or 8/5*

For this particular task students should write the ratio as a fraction. DO NOT let the students simplify the fraction as this will affect the graph. E.g. $170/160 = 17/16$. This will adversely affect each axis scale.

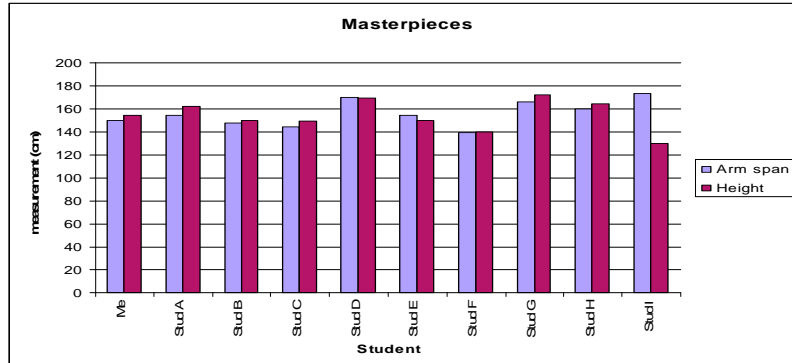
Variable: The two variables for this task are 'arm span' and 'height'.

Bivariate: Analysis involving two variables. I.e. Bivariate data are data where we have two measurements of each individual. E.g. height and arm span

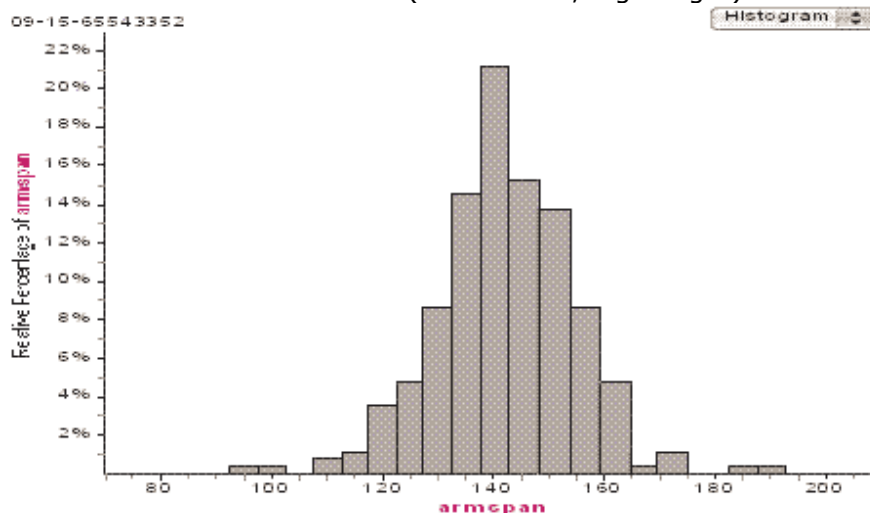
Bar Graph: Bars do not touch for a bar graph. Used for Discrete (countable, e.g. Number of students) data.



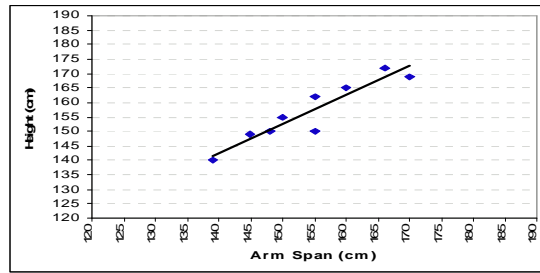
Composite Bar graph: Bars touch, but only for each student. Used for Discrete (countable) data.



Histogram: the bars touch. Used for Continuous (measurable, E.g. height) data.



Scatter Plot: One variable is plotted against a second variable. For example: Arm span versus Height of a student. The data could also be graphed using a composite bar graph. A composite bar graph may be a good starting point if students have not worked with bivariate data previously.

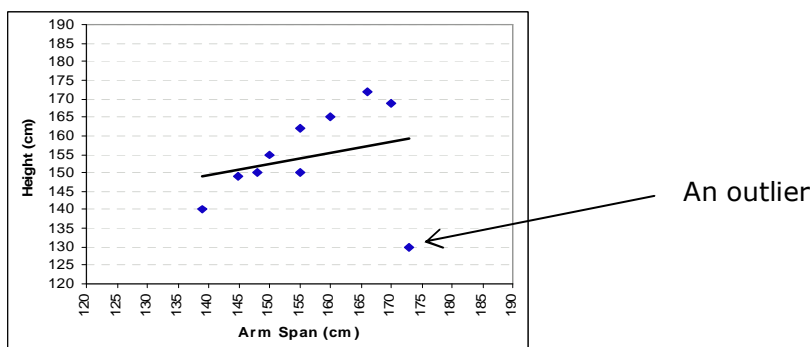


Line of best fit: A line can be drawn through the data, with approximately half the point above the line and the other half below. Higher level students could discuss aspects of the gradients and their meanings (positive or negative relationship etc.).

Units: Use centimeters rather than metres to avoid nasty decimals.

Bumps and Clumps: Words such as 'bumps' (in bar graphs) or 'clumps' (in scatter plots) can be used to describe what younger students can see from the graphs. These are just some of the words that younger students may use to help explain what they can see.

Outlier: A point in a scatter plot that is a long way from the rest. These can be caused by incorrect measurements or measuring.



Range: The range of a set of data is the largest value minus the smallest value. For example: The tallest student is 180 cm and the shortest student is 150 cm. The range is 30 cm. The range can help students select an appropriate scale.

Sampling Information

Sample: An interesting aspect of this activity is allowing the student to create their own sample. There are two techniques of sampling that students can do for this activity (with-out the aid of technology).

Systematic Sampling: The student chooses a starting point from the class list and then selects every second or third student from that list until they have a sample of 10. (A student should only appear once in a sample)

Cluster Sampling: The student selects a spot on the list and then selects the next nine students. (A student should only appear once in a sample)

Simple Random Sample: The students number their dataset from 1 to **n** (number of students in dataset). Use random number generator on scientific calculator. Sequence of key on Casiofx model.

n shift ran # =

Included are some templates that you may wish to copy and use. (With and without scales)

