Determining Height

STUDENT PROJECT

Directions:

Knowing the height of an unidentified victim can sometimes be the key to figuring out their identity. However, in some cases, this can be difficult if only partial remains are found. Scientists have developed formulas for determining the height of an individual based on partial remains such as the tibia. You will continue this work, by developing your own formula for how to determine the height of an individual if only able to measure one part of the body.

1. Get into groups of two.

2. Select a body part which you will measure to determine the height of an individual. This body part should be one you think will be able to indicate height (hair length, for example, would not be an option because it does not directly relate to height). The following pages include project sheets you will need to fill out for each step of the project.

3. Write down your methodology (or step-by-step method for measuring this body part), being sure to be explicit about what your beginning and ending points will be so the measurements will be done in as close to the same fashion as possible every time when collecting data. For example, if you were to measure the tibia, the methodology might be to measure from the center of the ankle on the outside of the leg up to the center of the joint on the side of the knee.

4. Collect data from 30 participants by measuring their height as well as your selected body part using your methodology.

5. Calculate the mean, median and mode of both your participant's height and the length of your selected body part. Be sure to show all of your work.

6. Determine the standard deviation of your data.

7. Graph your data on the project sheet. Determine whether the correlation is strong, weak or no correlation.

8. Using the graph you created, estimate the line of best fit for your data.

9. Calculate the linear regression for your data using the line of best fit you drew on your paper. Be sure to show all of your work.

10. Calculate the linear regression for your data using a graphing calculator.

11. Explain whether or not your selected body part would be a good way to determine the height of an individual and provide justification for your answer.

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1. What body part will you be measuring? Why?

2. What is your methodology for measuring this body part on your participants?

3. Fill out the following table with your data.

4. What is the mean for the height measurements? Show all work.

5. What is the mean for your selected body part measurements? Show all work.

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6. What is the median for the height measurements? Show all work.

7. What is the median for your selected body part measurements? Show all work.

8. What is the mode for the height measurements?

9. What is the mode for your selected body part measurements?

10. What is the standard deviation for your height measurements? Show all work.

11. What is the standard deviation for your selected body part measurements? Show all work.

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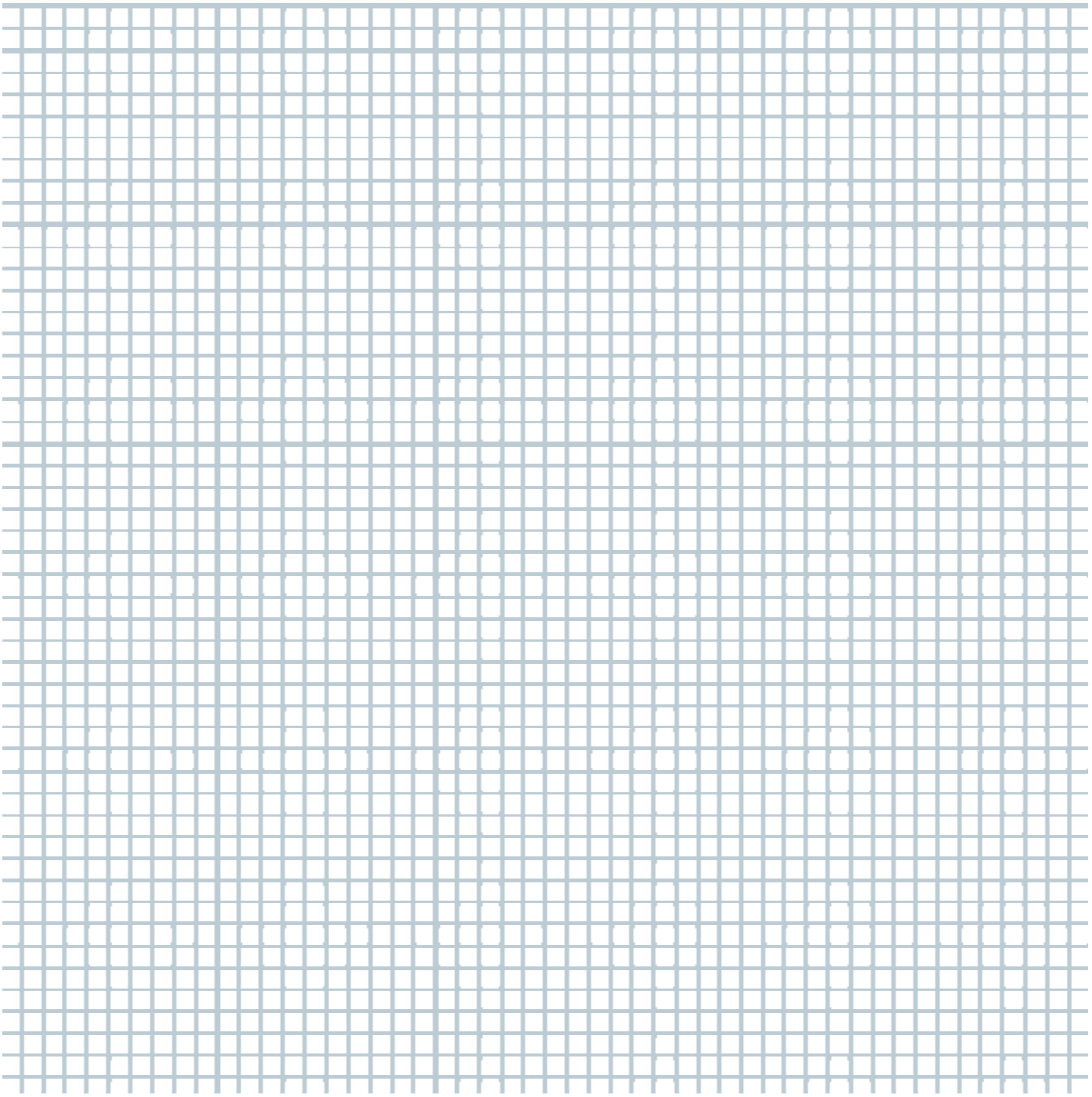
12. Graph your data.



13. Does your data show correlation between the two variables? If so, is it strong or weak. Justify your answer.

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14. Draw the line of best fit.

15. Find the linear regression of your data. Show all work.

16. Use a calculator to find the linear regression of your data.

17. Is your selected body part an effective part of the body to determine the height of an individual? Justify your answer.