8.SP.1 Hand span and height

Task

Do taller people tend to have bigger hands? To investigate this question, each student in your class should measure his or her hand span (in cm) and height (in inches). Record these values in the table below.

Student	Hand Span (cm)	Height (inches)
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		

13		
14		
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16		
17		
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19		
20		
21		
22		
23		
24		

a. Create a clearly labeled graph that displays the relationship between height and hand span.

b. Based on the graph, how would you answer the question about whether taller people tend to have bigger hands?

c. Based on your graph, would you describe the relationship between hand span and height as linear or nonlinear? Explain your choice.

IM Commentary

- For purposes of consistency, it is recommended that one person be in charge of taking the measurements. This role may be taken by the instructor, or one of the students in class.

- For consistency, measure hand span of right hand for all students.
- To measure hand span, spread out fingers as much as possible, and then measure the distance (cm) between tip of thumb to tip of little finger.
- Height should be measured without shoes and without anything on the head that would inflate height (besides hair). For those wearing religious headwear, be careful not to measure the height of the headwear.
- Notice that hand span is measured in centimeter which is a finer unit of measurement, to account for the fact that a difference in hand span is on a relatively finer scale compared to difference in height, which can be measured in inches (and is typically measured in feet and inches).
- Typically, the association between hand span and height has observed to be positive, moderately strong, and linear, with relatively few outliers. That is, people with larger hand spans tend to be taller. Also, depending, there may be some noticeable separation of males and females, with heights and hand spans of females being towards the left bottom corner of the scatterplot, and those for the males being towards the right top corner. Of course, there may be outliers in this case, too.

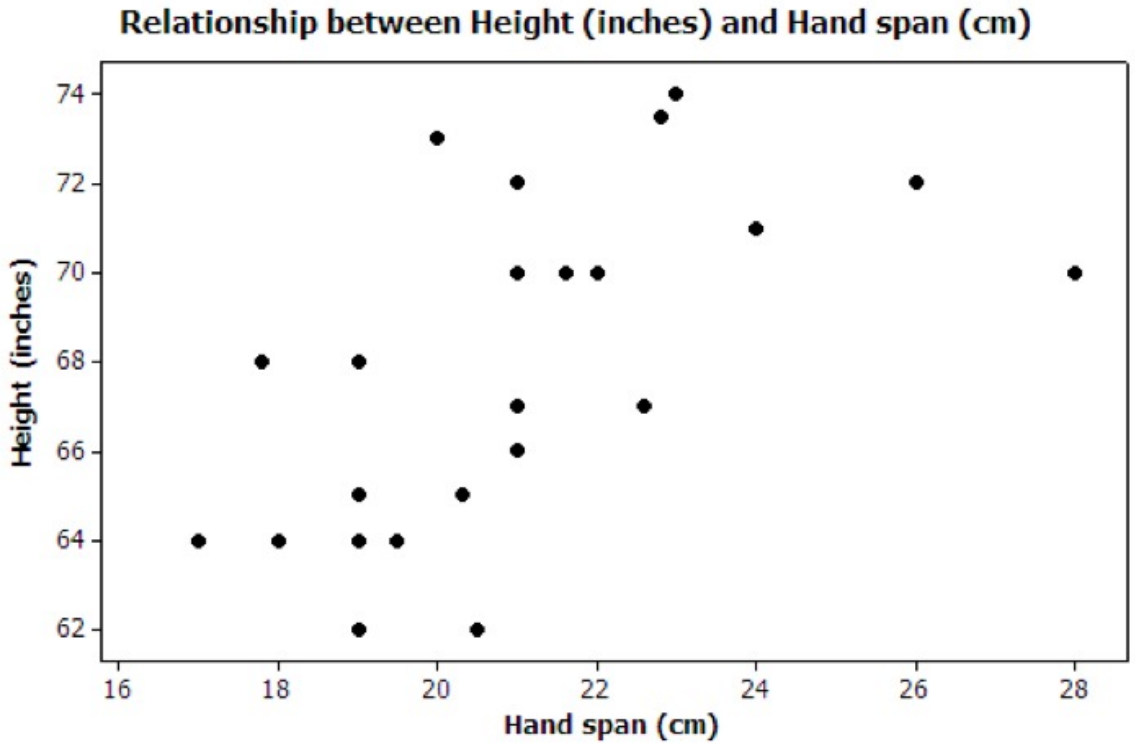
Solution

Solutions will vary depending on the actual data values collected by the class. Below is a solution based on the following hypothetical data set:

Student	Hand Span (cm)	Height (inches)
1	17.0	64.0
2	21.0	67.0
3	20.3	65.0
4	26.0	72.0
5	24.0	71.0
6	22.0	70.0
7	21.0	66.0
8	19.0	62.0

9	20.0	73.0
10	19.0	65.0
11	17.8	68.0
12	20.5	62.0
13	21.0	70.0
14	22.8	73.5
15	22.6	67.0
16	21.0	72.0
17	23.0	74.0
18	21.6	70.0
19	21.0	72.0
20	28.0	70.0
21	18.0	64.0
22	19.0	68.0
23	19.5	64.0
24	19.0	64.0

a. Here is a scatterplot showing the relationship between height and hand span.



b. Each dot represents a student, and the position of the dot with regard to the horizontal axis represents the student's hand span (cm), whereas the position of the dot with regard to the vertical axis represents the student's height. We can see that dots with lower hand span values also tend to have lower values for height; similarly dots with higher hand span values also tend to have higher values for height. Overall, we can see that there is an upward trend in the scatterplot. This shows that taller people tend to have bigger hand spans.

c. The overall form of the relationship between height and hand span appears to be linear, except for the student with a hand span of 28cm and height of 70inches. We can say this because a line seems to be the most appropriate pattern to represent how height is changing with hand span.