

Footprints on the Road Level 4, Sample 1

A

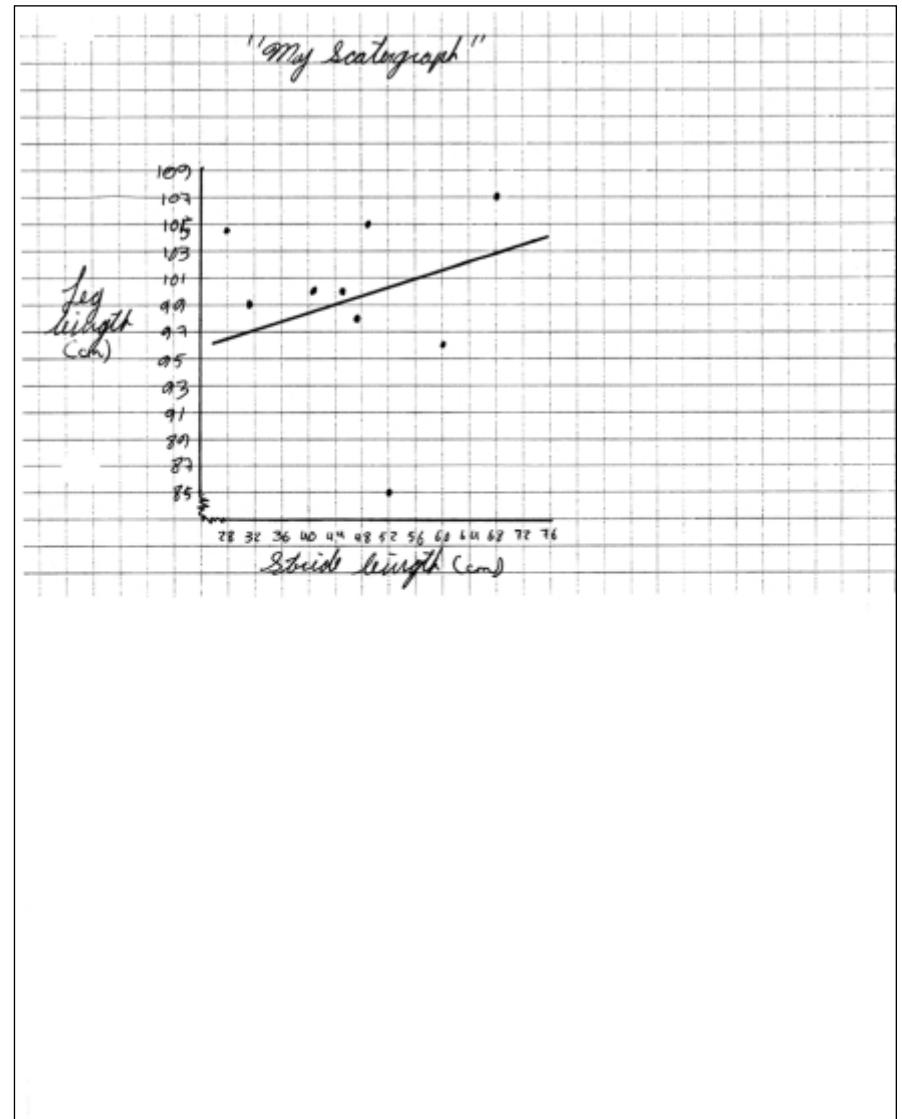
Student assessment activity
(Part #2)

- 1)a) "the longer your legs, the longer your stride will be".
If people are really tall or have long legs, their strides are going to be farther apart than a short person or a person with shorter legs.
- b) To figure out if this is true or not, we would refer to our table of data: Things that could affect the accuracy of the data could be weather they are male or female, their height, foot size (right or left), stride length, or leg length. Other things that might affect it could be if people exaggerate their stride length, if people are wearing shoes when they do the foot size, if we measure both legs, Etc.

- 2)a) "My table of values"
(based on leg length and stride length)
(only male)

Leg	Stride
107	68
105	49
104	28
100	45
100	41
99	31
98	47
96	60
85	52

B



- 2)b) If you look at the scatter graph, you will find that there really isn't a very recognizable trend, the points are mostly spread out all over, but I have made a line of best fit and as you can see it is slightly going up. There are however some people who have a leg length of 85 and a stride length of 52, but I think they just exaggerate their step.
3. My hypothesis was correct. People with long legs had longer strides, and people with shorter legs had shorter strides. Some people with short legs had big strides which means either they were putting on an act, or they really did have big strides. To make this test more accurate we could have done both legs instead of one, and tested them more than once.
4. Another relationship between two variables would be the older you are, the taller you are (in most cases). That's how doctors can tell if you will grow when you get older, by seeing how tall you are when you are little, and see if you will be tall or average or even short by measuring your height throughout your childhood. And to see the doctor if you are healthy and growing properly by measuring your height when you are young. And if you are not growing properly, they can find out what's wrong.

Teacher's Notes

Knowledge/Understanding

- The student makes a statement to be investigated that includes both ends of a continuum, demonstrating a thorough understanding of a relational hypothesis.
- The student identifies and explains many factors that could affect the investigation (e.g., “if people exaggerate their stride length”).

Thinking/Inquiry/Problem Solving

- The student not only describes dispersion in words but also refers to an alternative method of recognizing the trend, demonstrating a high degree of accuracy and detail (e.g., “but I have made a line of best fit and as you can see it is slightly going up”).
- The student states the conclusion clearly, with a high degree of detail, as an affirmation of the hypothesis, with reference to both aspects of the relationship, including the exceptions to the rule (e.g., “People with long legs had longer strides and people with shorter legs had shorter strides. Some people with short legs had big strides . . .”).

Communication

- The report is highly organized, with a high degree of clarity of mathematical reasoning (e.g., the data and the graph are integrated into the body of the text).
- The student communicates graphically, demonstrating a high degree of skill in the use of proper form (e.g., the graph is well planned and properly labelled).

Application

- The student identifies a realistic application and provides a highly detailed and thorough description of it, followed by an explanation of its importance (e.g., “the older you are, the taller you are . . . That's how doctors can tell if you will grow . . . , by seeing how tall you are when you are little . . .”).

Comments/Next Steps

- The student could give more thought to an appropriate title for the data table and the graph.
- The student makes a well-organized and thorough analysis of the investigation.

Footprints on the Road Level 4, Sample 2

A

ONTARIO EXEMPLARS PROJECT
Footprints on the Road

Problem: Does the height of a person affect the length of a person's stride and if so, how?

Hypothesis: I think that the taller a person is, the longer their stride is going to be. The reason that I think this is because the taller a person is, the longer their legs usually are. Therefore, if a person has long legs, their legs can usually reach further than the legs of a shorter person, which gives the person with the long leg reach, a further stride than that of a short person with a short leg reach.

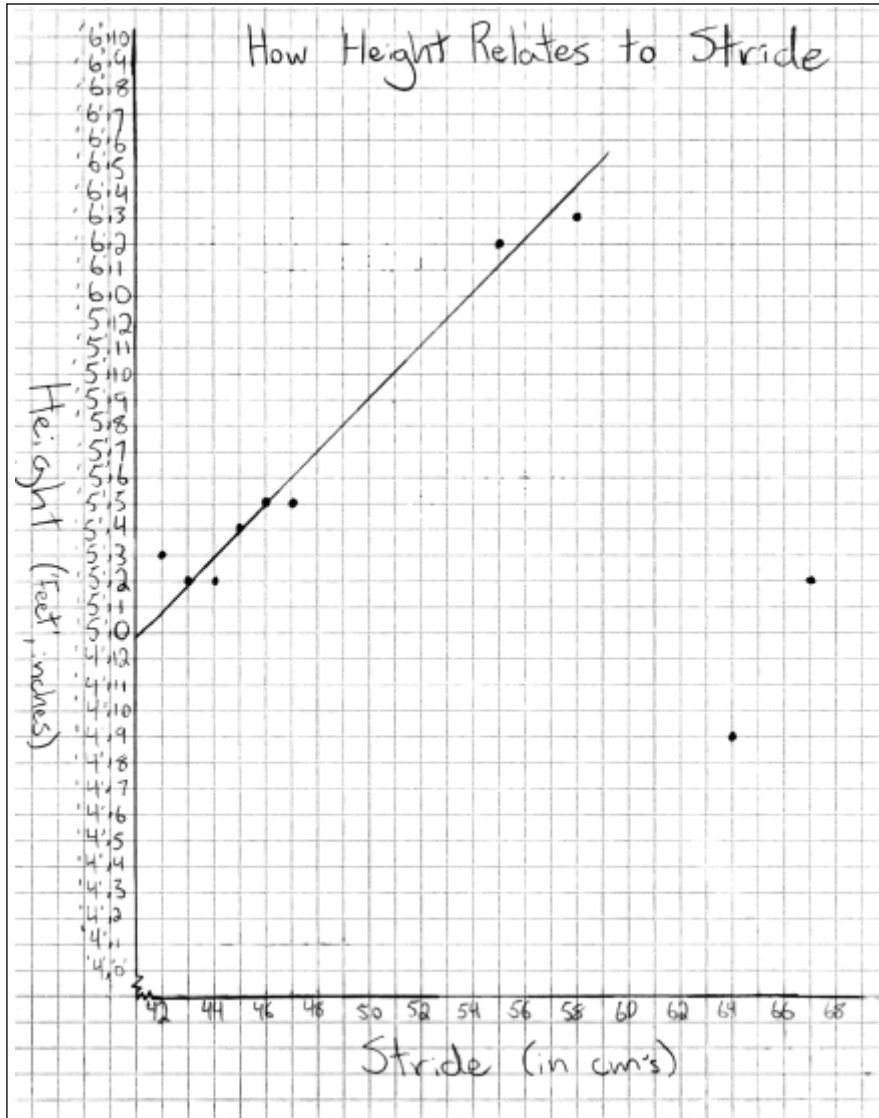
Factors that might affect the data: Somethings might affect our data also because, not all bodies are proportionate and haven't finished growing, some people even drag their heels or they could be walking and running, and it could be that everyone is wearing different shoes.

Conclusion: After gathering information and analyzing it with the use of a graph, I have come to the conclusion that the height of a person affects the length of a person's stride. The graph showed a positive and strong correlation between a person's height and their stride.

B

Table of Values

X - Stride	Y - Height
42 cm	5'3"
43 cm	5'2"
44 cm	5'2"
45 cm	5'4"
46 cm	5'5"
47 cm	5'5"
55 cm	6'2"
58 cm	6'3"
64 cm	4'9"
67 cm	5'2"

C**D**

Another Relationship: Another relationship that I thought of is how the size of your family affects the money spent per year on clothes and on food. I would anticipate that the bigger a person's family is, the more money they will spend per year on clothes and food and I would anticipate a positive correlation.