

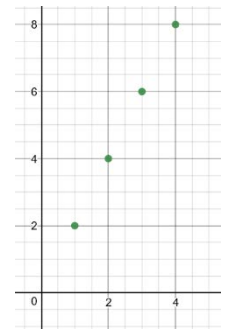
Linear relations occur in the world when two things are related in a simple, proportional way. For example the number of tires on one bicycle is 2. If I have four bicycles, I have 8 tires.

Here is a **table of values** showing this proportional relationship

Number of Bicycles	1	2	3	4
Number of tires	2	4	6	8

When a linear relation is graphed, it looks like a straight line. Here is a graph of the relationships above.

Notice for this graph, the variables are **discrete**, so it is graphed as points that are not connected. Discrete variables are items that can be counted. The number of bicycles appears on the horizontal axis. The number of tires appears on the vertical axis.



To help introduce the concept of **linear relations** in a relevant way, you will investigate wages. This also related to our finance unit and how we can think about saving money.

1. Choose two different jobs that you might like to do in the next 5 years. The jobs must pay an hourly wage.

Job # 1 marine biologist      Job # 2 veterinarian

2. Find reliable Canadian internet sources to get information about the 2 jobs:

- What is the hourly wage for each job? Make sure they are different.

Job # 1 \$ 32.31      Job # 2 39.62

Copy and paste the website URL's: <http://www.livingin-canada.com/salaries-for-biologists-canada.html>      <http://www.livingin-canada.com/salaries-for-veterinarians-canada.html>

3. A) Fill in a table of values for each job.

Number of Hours	Total Pay
0	0
1	32.31
2	64.62
3	96.93
4	129.24
5	161.55
6	193.86
7	226.17
8	258.48
9	290.79
10	323.1
20	646.2
40	1,292.4
100	3,231
X (an unknown number of hours)	32.31x

Number of Hours	Total Pay
0	0
1	39.62
2	79.24
3	118.86
4	158.48
5	198.1
6	237.72
7	277.34
8	316.96
9	356.58
10	396.2
20	792.4
40	1,584.8
100	3,962
X (an unknown number of hours)	39.62x

- B) Can you write an equation relating the hours worked (h) and wages earned (W)?

$$W = 32.31h$$

$$W = 39.62h$$

4. Graph the two tables on graph paper. (Or if you prefer, use your device or desmos to make a digital graph then screen clip it into your assignment)
5. Which of these two jobs would you prefer to have based on this information and why? What are some other factors to consider when comparing the two jobs?
- I would prefer to have a job as a veterinarian as I'd receive more money per hour. Other factors to consider are the location of the workplace and sick/vacation days.
6. You want to save \$1,000. Pick one of the jobs. State how many hours a week you could work while going to school. How long will it take to save the money, assuming you have no expenses or taxes to pay?
- I could work as a marine biologist 53 hours a week while going to school. It would take 31 hours to make 1,000\$.

7. Share your findings with your parents/guardians and have a discussion about this assignment. What have you found out that you didn't know before?

I found out that veterinarians earn more per hour than marine biologists and I thought it was the opposite.