



Bullying—studying it to curb it....

The bullying phenomenon is on the rise in schools. Studies show that 10% of Quebec students are victims of acts of bullying at least once per week.

Is the bullying situation just as disturbing in the rest of the country? Does it affect boys as much as girls? Does it affect younger students as much as older students? Is your class affected by this phenomenon?

In the 2009-2010 *Census at School* survey, many Canadian students indicated the number of times that they had been victims of bullying at school over the course of the last year.

1. To begin your analysis, obtain a **sample** of 200 Canadian student responses from the 2009-2010 or earlier surveys. Go to the *Census at School* site (www.censusatschool.ca) and under "Data and Results", click on "International results and random data selector". Follow the directions to obtain your sample.

Then fill in a **frequency table** like the one below:

Group	Number of bullying incidents reported over the course of the last year				Total
	0	1 to 3	4 to 9	10 or more	
Sample					

2. Convert this frequency table into a **relative frequency table**. Does the relative frequency table help to illustrate your data? Why?

You can also use a **graph** to communicate more clearly what appears important to you. Which of two graphs types, the **bar** or **circle** graph, would you use in this case? Why?

To better understand the phenomenon and identify the **variables** that influence it, you can analyse the distribution of responses in the **sample** of Canadian students based on some of their characteristics.

3. Start by noting the different responses by sex (boy or girl) to assess the effect of this **variable**.

Sex	Number of bullying incidents reported over the course of the last year				
	0	1 to 3	4 to 9	10 or more	Total
Boy					
Girl					
Total					

4. Based on this table, try to answer the following questions. Make a relative frequency table or a graph to help you answer them:

- **Proportionally**, is the number of bullying incidents that girls and boys are subjected to the same?
- Does the **probability** of being a victim of bullying vary based on whether you are a boy or girl? Explain your reasoning.

5. Then, see whether certain *age groups* are more affected than others:

Age	Number of bullying incidents reported over the course of the last year				
	0	1 to 3	4 to 9	10 or more	Total
10					
11					
12					
...					
Total					

6. Use a **relative frequency table** and appropriate **graphs** to more easily compare the number of acts of bullying suffered by students of each age group.

- Which age group do you believe is at greater risk?
- Does the phenomenon increase or decrease with age?

Could being bullied also be related to the height of students?

Since height **depends** on both sex and age, we must try to keep these other two variables constant to be able to **isolate** the effect of the height variable.

7. The ideal method would be to create a new, sufficiently large sample of students of the same age and then analyse responses from girls and boys separately.

Since height is a **continuous variable**, it is a good idea to define different classes. To keep it simple, you can define three classes based on the data: short, medium and tall. Your frequency table could look like the one below.

Height	Number of bullying incidents reported for boys 13 years of age				Total
	0	1 to 3	4 to 9	10 or more	
Short					
Medium					
Tall					
Total					

Once again, use a relative frequency table and a graph to help you compare the data.

What variable(s) seem most related to the bullying phenomenon?

8. Compare your various tables and graphs to identify which **variable(s) are most related** to the bullying phenomenon. Identifying these relationships allows you to consider a **model**, that is, a simplified representation of the phenomenon and of certain key variables that can describe, explain or even predict it.
9. To **validate** this model, now examine your class data. Please note that the students in your class reported the number of times they were bullied at school in the last month.
 - a) Do the sex, age and height variables appear to play the same role here?
 - Use tables and graphs to help you answer.
 - b) Does your class appear to be particularly affected by bullying?
 - Remember that the data from the Canadian samples indicated the number of times that each student reported being bullied in the last year.
 - Can you think of ways to compare your class data with the sample data?

- c) Do you think the fact of reporting the number of bullying incidents in the last year instead of the last month could affect the **accuracy** or the **reliability** of the data? Explain.
- d) What other reasons could explain the differences between your class data and the sample data?

To conclude:

10. Answer the following questions:

- What did you learn from this analysis?
- Did this exercise help you identify ways of stopping bullying at your school?

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