Lesson 19-Organizing Data

Tally: a method used to record the number of times an event happens

Frequency: the number of times an event happens

Sample: portion of a larger group

Example: Frequency Chart

1) Decide who is your Population: Large group of people you want information on

Canadian teens, Quebecers, HRHS students, Sec 1's, Programs students

2) Decide who is your Sample: subset (smaller part) of the population (Larger group)

your class

TITLE: Favorite School lunch

Favorite Lunch	Tally	Frequency	Percent (%)
Pizza	𝍸 ||||	9	9 ÷ 25 x100 = 36%
Poutine	𝍸 𝍸	10	40%
Hot Lunch of the day special	|||	3	12%
Sandwiches panini	|||	3	12%
	total	25	100%

% = (FREQUENCY ÷ TOTAL) X 100

1) What observations can you make about people's favorite lunches?

The most popular lunch is poutine with pizza as a close second

variable

2) What kind of variable is being studied in this chart?

Qualitative Variable

WB P 241 (all), P 242 (1)

4. Thirty students took a mathematics test. Here are the results.

55,	80,	70,	60,	82,	75,	65,	92,	68,	95,
81,	50,	72,	64,	45,	76,	58,	78,	86,	76,
84,	75,	58,	62,	83,	68,	86,	75,	48,	91.

30 students

a) Regroup the data into 6 classes with an amplitude of 10 marks, using 40 as the lower bound of the first class.

Class Number	Class	Tally	Frequency	Relative frequency (%)
1	40-49	11	2	7%
2	50-59	1		
3	60-69			
4	70-79			
5	80-89	1		
6	90-100			
total			30	100%

2 ÷ 30 × 100

b) What percent of the students have results

1. greater than or equal to 60 and less than 70? _____
2. greater than or equal to 80? _____
3. less than 60? _____

c) In which class do we observe the greatest number of student? _____

5. While in training, an Olympic 100 m sprinter recorded his times for the last 50 races he ran.

10.24	10.36	10.52	10.31	10.51	10.45	10.24	10.34	10.27	10.44
10.18	10.30	10.10	10.29	10.21	10.18	10.35	9.95	10.36	10.14
10.17	10.01	10.02	10.11	10.38	10.40	10.41	10.42	10.24	10.43
10.18	10.07	10.27	10.26	10.05	10.25	10.12	10.25	10.32	10.08
10.03	10.04	10.15	10.11	9.98	9.97	10.06	10.16	9.96	10.18

a) Regroup the data into 7 classes with an amplitude of 0.1 seconds, using 9.90 sec as the lower bound of the first class. Indicate the frequencies and relative frequencies in their respective columns.

Classification of races according to time

Class number	Class	Tally	Frequency	Relative frequency (%)
1	9.90-9.99			
2	10.00-10.09			
3	10.10-10.19			
4	10.20-10.29			
5	10.30-10.39			
6	10.40-10.49			
7	10.50-10.59			
total				

b) What percent of his sprints took

1. less than 10 seconds? _____
2. less than 10.10 seconds? _____
3. greater than or equal to 10.10 sec and less than 10.40 sec? _____

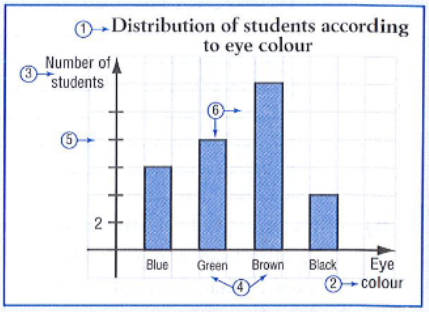
10.3 Graphs

BAR GRAPHS

- A **bar graph** allows for the illustration of a **qualitative** variable.
  We construct a **bar graph** from a frequency table.

Distribution of students according to eye colour

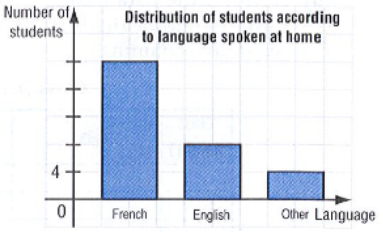
Eye colour	Number of students
Blue	6
Green	8
Brown	12
Black	4
Total	30



The principle elements are
① the title.
② the identification of the horizontal axis: the variable "eye colour"
③ the identification of the vertical axis: the frequency "number of students"
④ the identification of the bars (the values of the variable): blue, green...
⑤ the graduation of the vertical axis: the scale takes into consideration the frequencies.
⑥ the bars all have the same width and are equally spaced. The height of each bar should be proportional to the frequency.

- In a bar graph, the bars can be drawn **vertically** or **horizontally**.

1. The given vertical bar graph categorizes the students of a class by the language spoken at home.



a) Identify
1. the population. _____
2. the variable studied and its type.
_____

b) What are the values of the variable? _____

c) Which language is spoken the most? _____

d) Create the distribution table from the graph. Include a column for frequency and one for relative frequency, expressed as a percent, rounded to the nearest tenth.

Language	Frequency	Relative frequency (%)

Lesson 20-Review of Bar Graphs

Advantages

- Easy to read at a glance because bars show sizes. So the bigger the bar, the greater a categories value.
- We can easily compare or show how things are different.
- Easy to see trends or patterns.

Disadvantages:

-Time consuming.
- Most data is rounded off.
- Does not provide details.

Note:

Vertical Bar Graphs = are better for labeling the x-axis with time (years, months, hours)

Horizontal bar graphs: uses the y-axis (vertical line) for labelling. There is more room to fit labels for the categories.

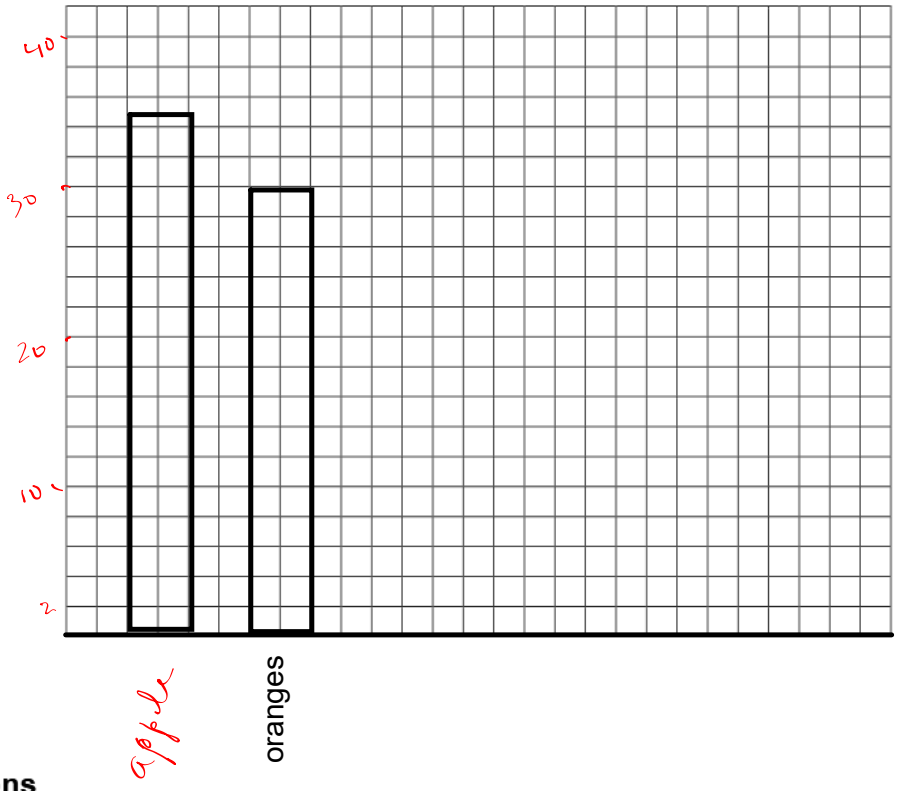
Each Bar Graph Needs

- A title
- 2 labeled axes
- Bars do not touch,
- Bars must be evenly spaced,
- Bars must be the same width.
- Must use Frequency to draw each of the bars
- Scale- should be equal and make sense with your table of values.
- Must use a Ruler

Example: Using the Table of Values, draw a bar graph below

People's Favorite Fruit

Fruit	Apple	Orange	Banana	Kiwi	Blueberry	Grapes
Frequency	35	30	10	25	40	5



Questions

1. What kind of variable is displayed in this bar graph? qualitative

2. What would be the percent for each category of Fruit?

3. What are 2 observations you can make about the graph?

P 243 (2-4)