Vision 3.2 - Know More, Compare Better

In statistical studies large amounts of data are collected. The set of data collected is called a**distribution.**

The data can be compiled and displayed using different types of tables and graphs.

Table of Condensed Data

Frequency table

When a distribution includes a large number of data that tends to repeat it can be compiled in a table where the data is condensed.

Below is a frequency table representing the number of children in a household in the Ville de Gaspe.

Number of children	Frequency
0	30
1	79
2	87
3	28
4	10

30 families have 0 children

87 familier have 2 children

234 families surveyed

(add all frequencies)

Table with Data Grouped into Classes

When a distribution includes a large number of data points that do not repeat, it can be compiled in a table where thedata is grouped into classes. Each class corresponds to an interval in the form [lower bound, upper bound[.

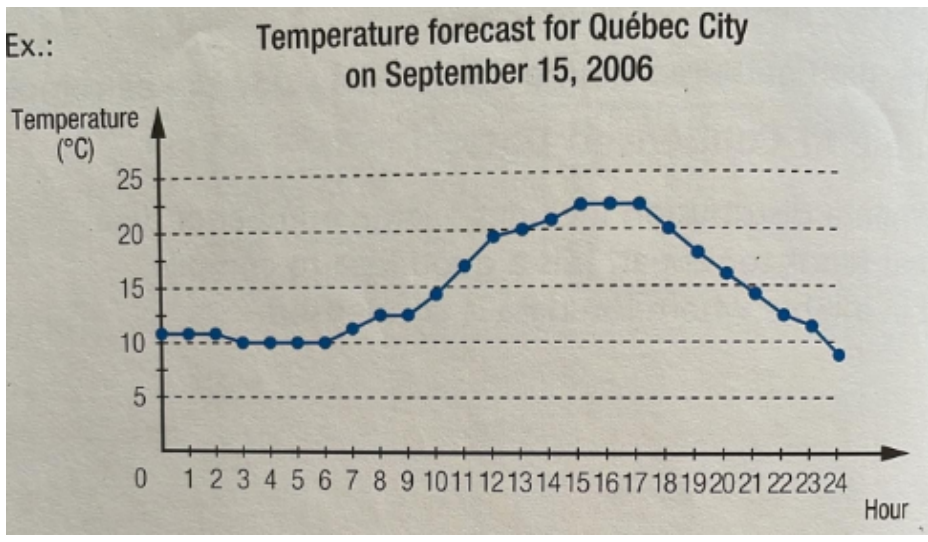
To construct a table with data grouped into classes, the number of classes and their amplitude must be determined. Theamplitude is the range between the lower and upper bounds of each class.

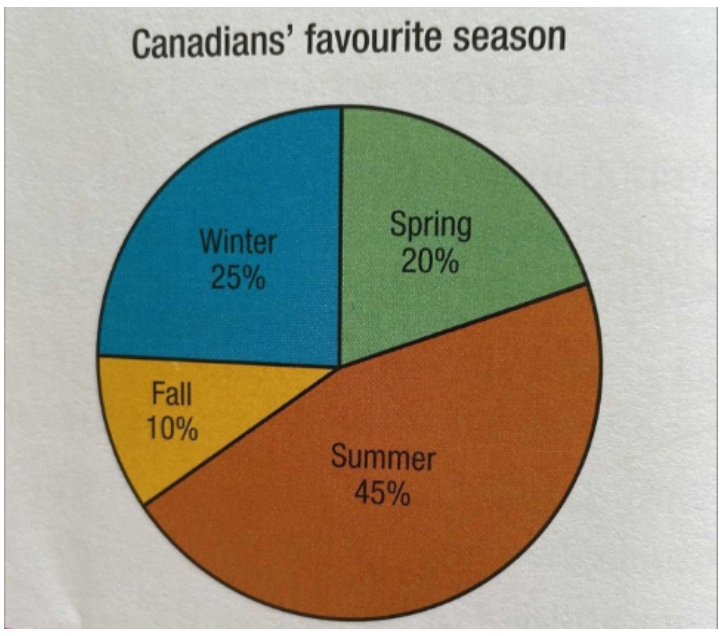
$$\text{range} = \text{largest value} - \text{smallest value}$$

$$\text{Size of class} = \frac{\text{range}}{\#\text{ of groups}}$$

A **scatter plot** is typically used to graphically represent discrete quantitative variables. When the plot points are connect it is refered to as a broken line graph.

A **broken-line graph** is typically used to graphically represent phenomena that evolve over time.

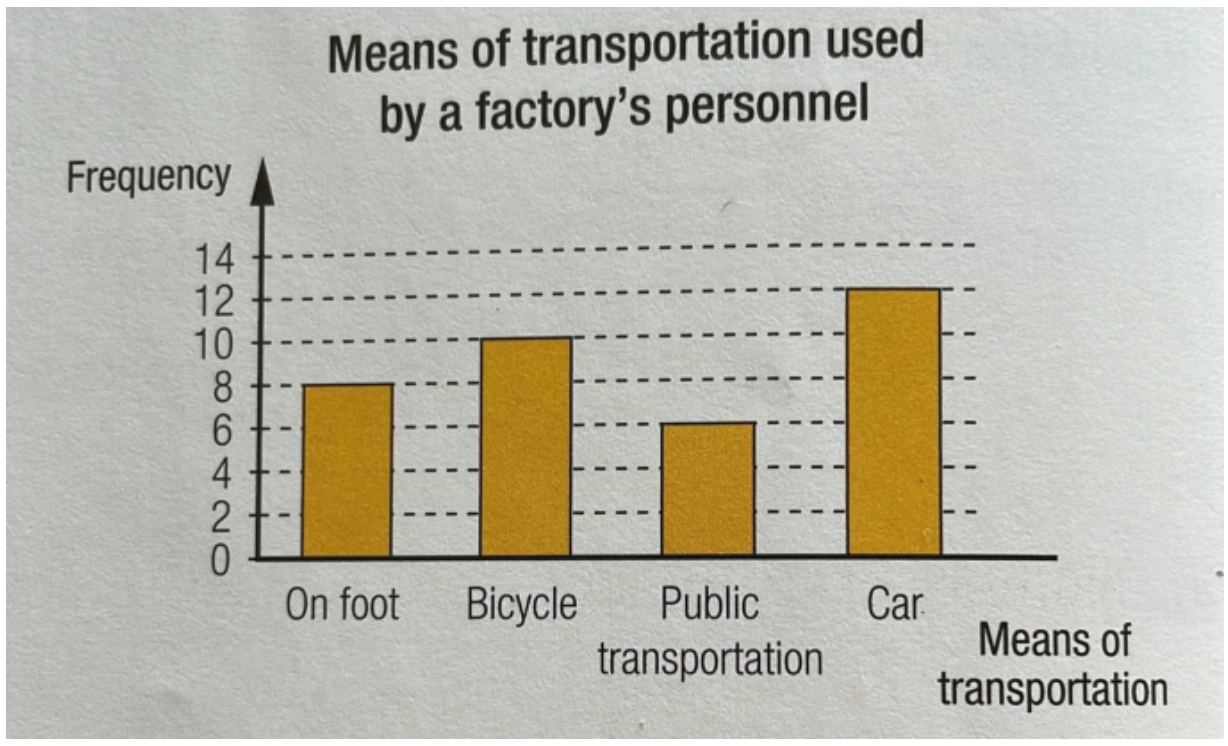


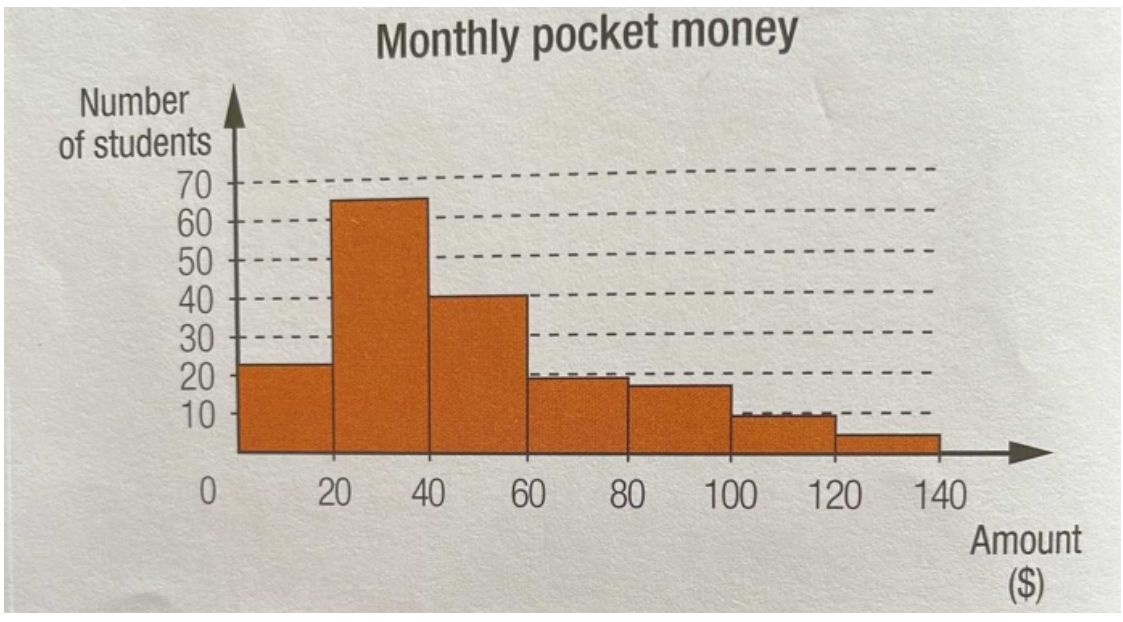


A **circle graph** (pie chart) is typically used to graphically represent qualitative or discrete quantitative variables.

A **bar graph** is typically used to graphically represent qualitative or discrete quantitative variables.

frequency table





A **histogram** is typically used to graphically represent data that is grouped into classes.

table grouped into classes

Check Your Understanding

Textbook Volume 1

Pages 133 – 135

Questions 3, 4, 5, 8

Name: ..... Group: ..... Date: .....

2 The hair colour of the 32 people applying for the position of heritage interpreter is listed below.

Legend	
Bn: Brown	Bk: Black
Bd: Blond	R: Red
A: Auburn	O: Other

~~Bn~~	Bd	Bk	R	Bk	~~Bn~~	Bd	~~Bn~~
Bk	Bk	R	O	A	A	~~Bn~~	Bk
Bd	A	Bd	A	~~Bn~~	Bd	Bk	O
~~Bn~~	Bk	A	Bk	Bd	Bk	Bd	~~Bn~~

a) Complete the table on the right using the data given above.

b) Why is it better to compile this data in a condensed data table?

Answer: Easier to read

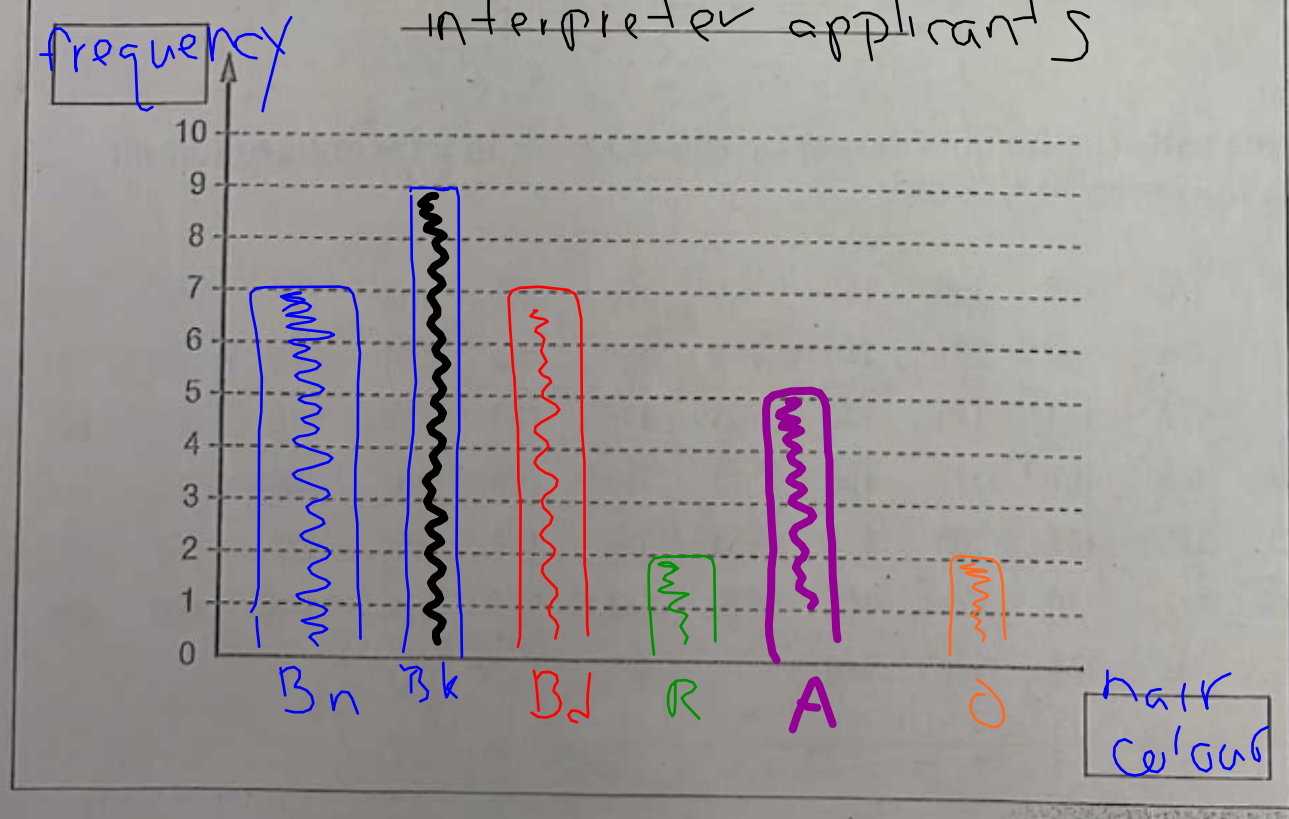
c) What type of graph seems most appropriate to illustrate this data? Explain your answer.

Answer: Bar graph, frequency table

d) Draw a bar graph to represent this situation. qualitative hair colour of interpreter applicants

Heritage interpreter position

Hair colour	Frequency
Bn	7
Bk	9
Bd	7
R	2
A	5
O	2



Name: ..... Group: ..... Date: .....

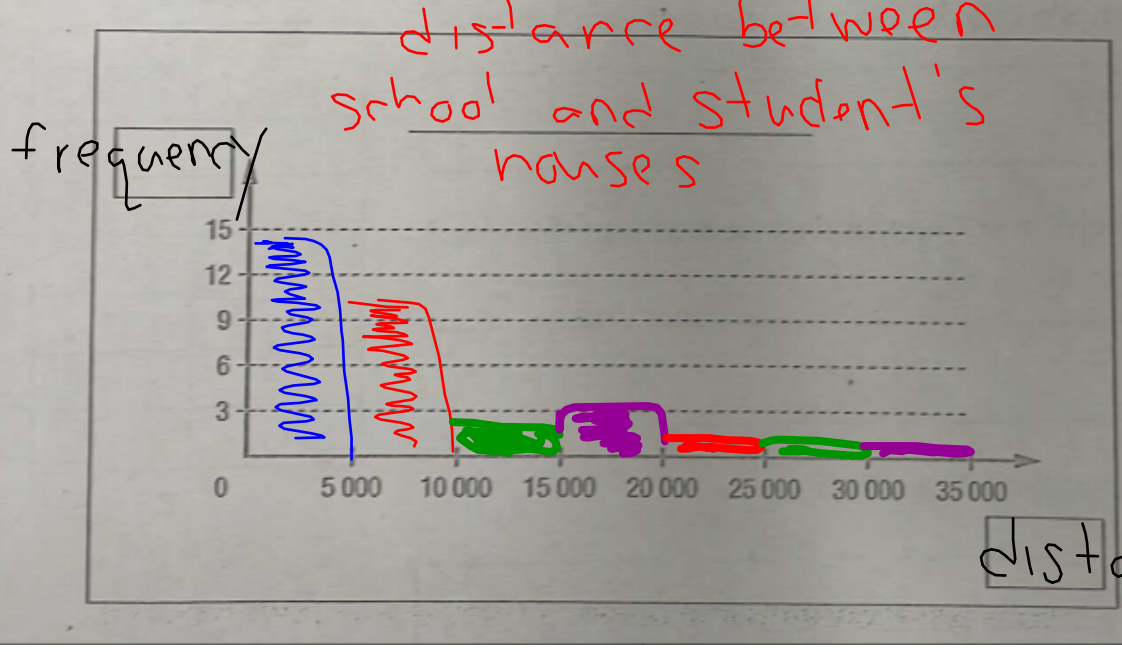
3 The data below represents the approximate distance (in m) between the school and the house of each student in a class.

5 000	12 000	27 000	9 000	17 500	22 800	13 450	34 500
800	15 000	17 000	7 500	2 000	3 400	2 700	1 600
1 200	3 700	950	5 100	5 100	6 200	8 000	4 700
3 000	3 600	1 800	450	9 200	6 300	5 500	4 100

3

a) Group the data into classes and organize it in a data table.

b) Draw the corresponding histogram.



Distance between the school and the students' houses

Distance (m)	Frequency
[0 ; 5000[	14
[5000 ; 10 000[	10
[10 000 ; 15000[	2
[15000 ; 20000[	3
[20000 ; 25000[	1
[25000 ; 30000[	1
[30000 ; 35000[	1

group sizes ① use graph

② use table

range = 34500 - 450

= 34 050

amplitude = 34050 - 7

= 4864 285714

5000