Chapter 1 Wrap-Up

EXTRA PRACTICE

1. The results of a federal political poll show the following results:
   NDP, 12%; Liberal, 28%; PC, 21%; Alliance, 24%; BQ, 11%; the rest are
   undecided.
   (a) Illustrate the data using a bar graph and a circle graph.
   (b) Which graph do you think best illustrates the data? Give reasons for
   your answer.

2. The following data represent the number of personnel years spent on
   technical research, by region throughout Canada. Should a bar graph or a
   histogram be used to display the data? Construct the most appropriate
   graph.

Region	Atlantic Canada	Quebec	Ontario	National Capital	Prairies	British Columbia
Personnel Years	900	600	1550	3700	1350	630

3. Construct a suitable graph to display each of the following sets of data.
   (a)   (b)

Age (years)	Pulse Rate (beats/min)
Newborn	135
1–9	87
10–19	71
20–59	72
60–69	73
70 and over	75

Year	Wins	Losses	Ties	Points
1990–91	37	33	8	82
1991–92	33	31	14	80
1992–93	27	41	10	64
1994–95	35	27	16	86
1996–97	31	33	14	76
1997–98	28	35	15	71

(c)

Total Monthly Precipitation in Thunder Bay (in millimetres)

J	F	M	A	M	J	J	A	S	O	N	D
59	42	32	30	42	58	58	73	56	61	55	54

4. "North Americans use more water than the rest of the world combined!" This headline jumped out from the top of Raul's morning paper and was supported by the following chart.

Country	USA	Canada	Switzerland	UK	Nigeria	West Germany	Belgium	India
Average Consumption per Day (L)*	690	385	294	195	142	130	97	65

*Data does not include water used by agriculture and industry.

Source: World Resources Institute

(a) Do you think the data support the conclusion?
(b) How confident are you about this conclusion? What other information might you want in order to feel more comfortable with the conclusion?
(c) Why might the writer of the article have reached this conclusion?
(d) What conclusions might you draw from these data?
(e) What might you want to research further based on these data?

5. As a project, Rhonda and her partner tried to determine the average masses of boys in various age groups at a local elementary school. They recorded the following data.

Age (years)	5	6	7	8	9	10	11	12	13	14
Mass (kg)	24	25	27	28	31	34	38	41	47	55

(a) Construct a scatter plot of the data.
(b) Estimate the line of best fit for the data.
(c) Based on your line of best fit, estimate the average mass of a boy 16 years of age.
(d) Now find an equation for the line of best fit and repeat part (c). What do you notice about your estimates? In which estimate will you have the most confidence?

6. Fatima, production manager at All Arabia Newspapers and Printing, kept a record for one week of the number of times that each employee needed help with a task. The results are shown below.

Employee	A	B	C	D	E	F	G	H	I	J
Length of Employment (weeks)	24	11	47	58	3	70	76	44	33	87
Requests for Help	14	20	10	13	25	10	6	15	19	6

(a) Construct a scatter plot of the data.
(b) Has employee C needed help more or less often than Fatima might have predicted?

7. The amount of fuel consumed by a car travelling a distance of 100 km was measured at various speeds. The data recorded appears below.

Speed (km/h)	10	20	30	40	50	60	70	80
Gas Consumed (L)	8.2	7.9	7.5	6.9	6.7	6.4	6.2	5.9

(a) Use graphing technology to construct a scatter plot of the data and determine the line of best fit.

**(b)** Describe the correlation for these data. Is this what you would expect? Why?

8. (a) Toss a coin five times and record the number of times heads turns up.

(b) Repeat part (a) 10 times, 15 times, 20 times, ..., 40 times.

(c) Use graphing technology to construct a scatter plot for the data using number of tosses and number of heads, and then find the line of best fit.

(d) If you were to toss a coin 50 times, how many heads would you expect? Use your line of best fit to find the number of heads you would expect with 50 tosses of a coin. What do you notice? How can you explain this?

9. Shown below is a creative-looking piece of art that compares data.

(a) Describe the impression that is given.

(b) Determine whether this impression is accurate.

(c) Describe how you might fix the graph so that it is more accurate.
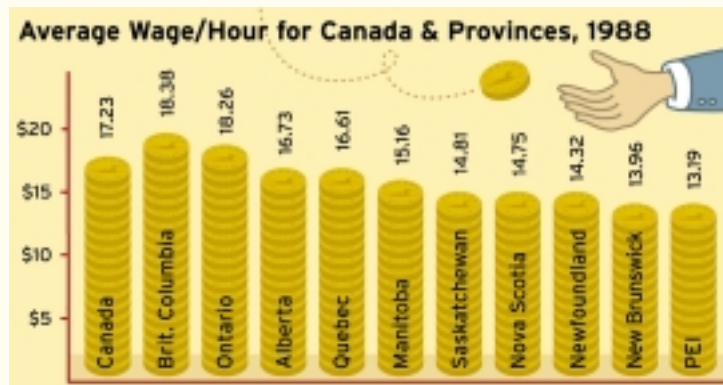
Source: XPLANE Corp. (Adapted from Sources of Differences in Provincial Earnings in Canada; Statistics Canada)