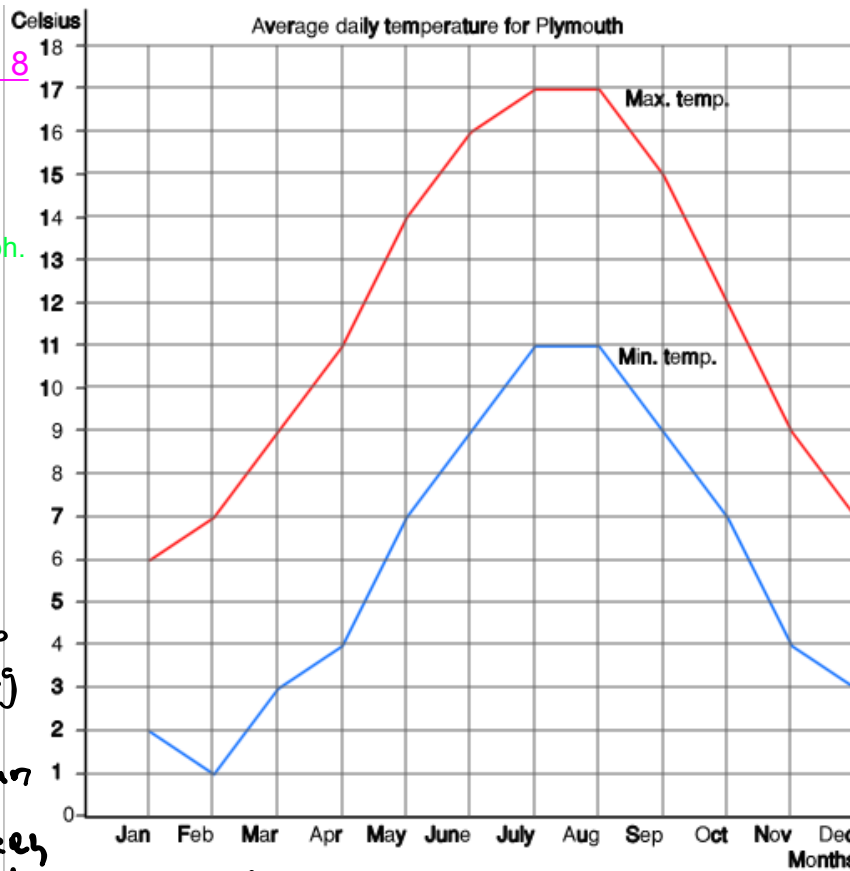Warm Up Grade 8

May 2, 2017

a) List 3 things you know from the graph.

b) What is its advantage and its downfall?

i) Min tmp lowest happened in Feb.

ii) highest min temp July & Aug

iii) There is a temperature range of 16° between the lowest min and highest maximum

Average daily temperature for Plymouth

Celsius (y-axis 0–18), Months (x-axis Jan–Dec)

Max. temp. (red), Min. temp. (blue)

b) Double line graph
→ easy to read and compare min/max temperatures

Downfall → confusing zigzag
→ Don't know where Plymouth is

3. a) All groups spend at least 12 hours watching TV each week.
   Adult men spend 21 hours watching TV each week.
   Children spend 15 hours watching TV each week.
   b) Women 18 and over watch the most TV.
   Teens watch the least TV.
   Children watch more TV than teens.
   c) Choice of graph may vary. For example: Each square in
   the pictograph represents 4 h, so you have to multiply the
   number of squares (and fractions of a square) by 4 to
   determine the number of hours a group spends watching
   TV. It is easier to use the bar graph because the rectangles
   end on a grid line or between two grid lines, and the scale
   is labelled on every other line where it intersects the
   horizontal axis. So, the bar graph is the better choice.

4. a) The bar graph is easier to read.
   The symbols in the pictograph reinforce the topic and
   make it more visually appealing.
   b) Neither graph shows the percent of students who littered
   each number of times.
   c) If you want to clearly show the number of students who
   littered each number of times, the bar graph is the better
   choice. If you want to show the number of students who
   littered each number of times in a visually appealing way,
   the pictograph is the better graph.
   d) Since the data were not collected over time, you should not
   use a line graph to display the data. Displaying the data in
   a circle graph is appropriate if you are interested in the
   proportion of students who littered each number of times.

5. a) The most common final grade was a B.
7 students got A as a final grade.
3 students got D as a final grade.

b) The most common final grade was a B.
10% of the class got D as a final grade.
More students got C as a final grade than A.

c) The bar graph shows the number of students who got each grade. The circle graph shows the proportion, not the number, of students who received each grade. So, the bar graph best shows the number of students who got B as a final grade.

d) Mr. Sidley should show the bar graphs. He has 7 students who got an A and 10 students who got a B, while Ms. Taylor has 6 students who got an A and 8 students who got a B. They each have 3 students who got a D.

e) Responses may vary. The question is debatable, partly because the class sizes are different. For example: Most students in Mr. Sidley's class got a B or a C, and most students in Ms. Taylor's class got an A or a B, so Ms. Taylor's class did better.

6. a) Each graph shows the Olympic winning times for men and women in the 400-m hurdles.

b) The double line graph shows the trends from year to year for men and women; since the vertical axis displays data above 42 s only, it is easier to spread out the data for men and women to examine how the trends are different. The bar lengths in the double bar graph are helpful when you want to compare men and women's times.

c) The double line graph is more difficult to use to compare men and women's times. The double bar graph is more difficult to use to get an accurate estimate of the winning times since the scale increases by 5 along the vertical axis.

d) i) The double line graph, because the lines between the points on the graphs show the trends over time.

ii) The double bar graph, because the difference between times is the difference in the heights of adjacent bars.

7. a) T-shirt sales over a year involve data that change over time, and you may want to know the trend over the year.

b) Hockey players' playoff points involve discrete data, and you may want to compare the number of points each player has.

c) District test scores on a standardized test compared to provincial averages. This topic involves discrete data, and you may want to compare how well each district performed.

d) Number of different types of books students have read. This involves discrete data, and a symbol like a book would instantly make the topic of the graph clear.

e) Percent of waste generated by each wing of a school. This involves data where a percent of a whole is important, and it has few categories, so the graph will not be too complex.

8. a) The data in Table B: Yearly Sales. The data change over time, and Nina probably wants to see the trend in sales.

b) Answers may vary. For example: A circle graph. The data are discrete, and Nina could see what percent of people buy each size of shoe. So, for the next month, even if she expects the total sales will be different, she still knows what proportion of each shoe size to have in stock.

9. a) The line graph clearly shows the trends in attendance over time. The bar graph lets you easily compare attendance in different years.

b) The line graph does not let you easily compare the number of people in attendance in two different years. The bar graph doesn't show the trends in attendance as clearly as the line graph.

c) The line graph is the better choice if you want to show the trend over time. The bar graph is the better choice if you want to compare the attendance in different years.

d) A circle graph would not be appropriate because there is no obvious part-to-whole relationship.

10. a) I drew a line graph because the data change over time.

**Number of People Employed in the Construction Industry**

b) Advantages: The graph shows how the number of people employed in the construction industry increased each year from 2002 to 2006. I could use the trends to predict the number of people employed in the construction industry in 2007.

Disadvantages: The numbers are large, so it is not easy to read the number of people employed each year. Because the graph uses the zigzag symbol on the vertical axis, it is difficult to compare the results for different years.

11. a) I drew a bar graph. The data are discrete and I wanted to be able to compare the Aboriginal populations for different provinces or territories easily.

b) Advantage: The bar graph lets you easily co the Aboriginal populations for different prov territories.

Canadian Aboriginal Population, 2001
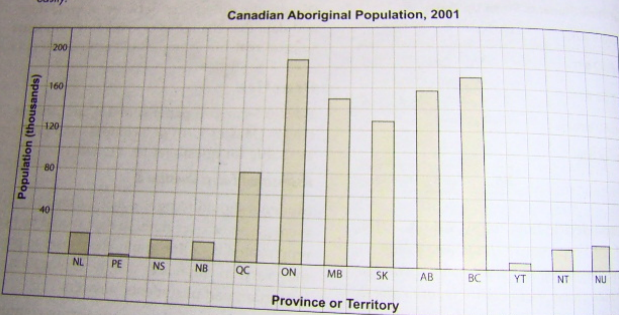
Disadvantages: The numbers are large, so it is impossible to read the exact Aboriginal population in each province or territory. You can't see what percent of Aboriginal Canadians live in each province.

12. Graph choices may vary. For example:

i) Pictograph. The data are discrete and I think Dinah would probably want to compare the number of times her dad fell asleep for different weeks. Dinah could use a bar graph or a line graph, but I think it would be more interesting if she used a pictograph.

ii) Double bar graph. The data are discrete and I think Dinah would probably want to compare how many times each of her parent cooked each week.

iii) Circle graph. The data are discrete and represent how much time Dinah's brother spends doing each activity out of the 24 hours in a day. She might have to include another category for time he spends doing other things.

iv) Line graph. This data change over time, so a line graph is best. Also, Dinah could use the line segments to estimate the height of the tomato plant on days she didn't measure it.

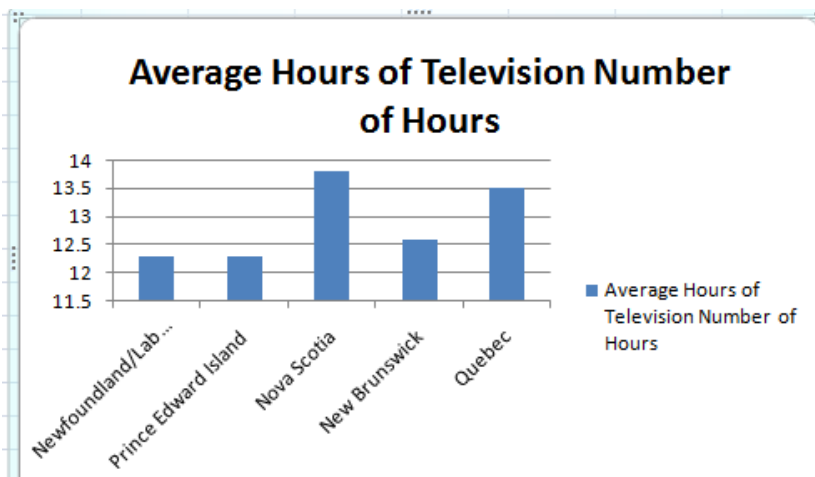**13. a)** I drew a line graph. The data change over time (as the guinea pig grows).

Guinea Pig Mass
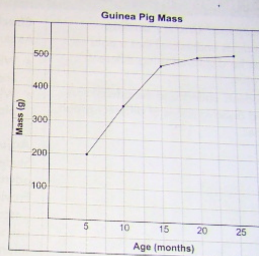
Using Spreadsheets to draw graphs

Place	Number of People
School	5700
Work	4100
Club or Organization	1400
Organization	700
Home/neighborhood	4300
Through family	1200
Through friends	1100
Other	600

Number of People

- School
- Work
- Club or Organization
- Organization
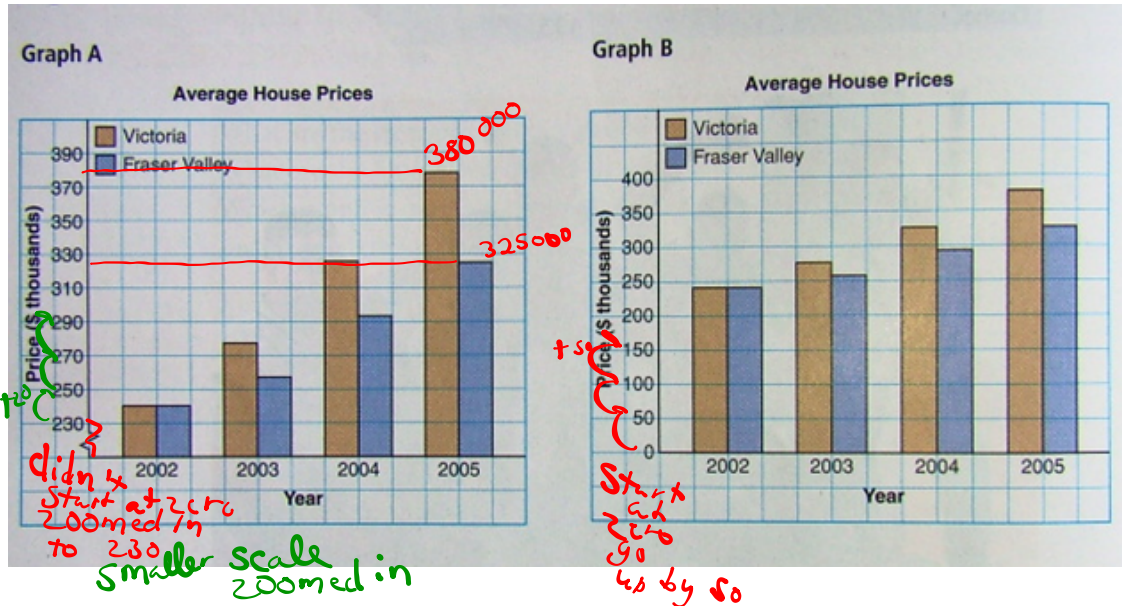- Home/neighborhood
- Through family
- Through friends
- Other

Number of People

- Number of People
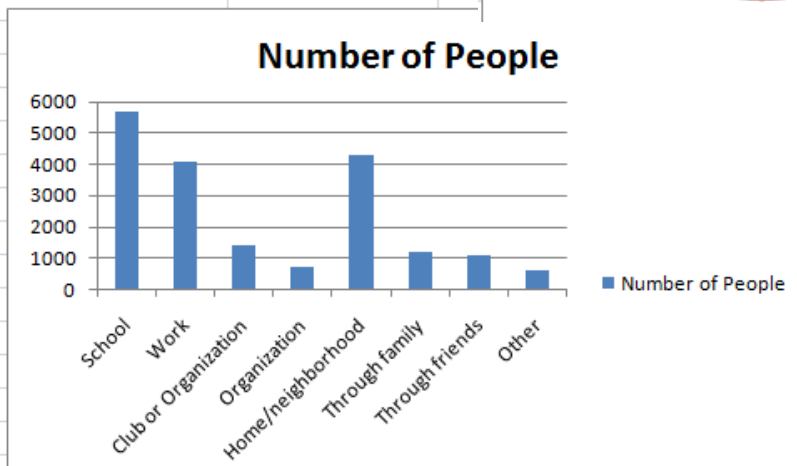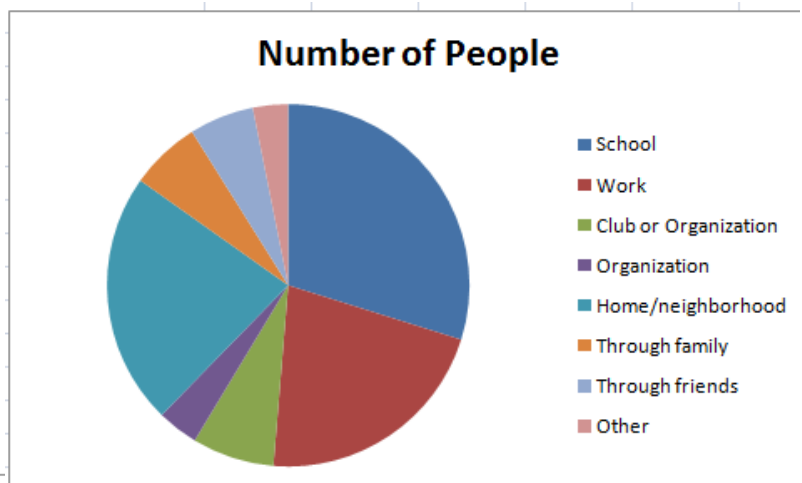
Average Hours of Television	
Province	Number of Hours
Newfoundland/Labrador	12.3
Prince Edward Island	12.3
Nova Scotia	13.8
New Brunswick	12.6
Quebec	13.5

gr 8 u7 dm graphs with excel.xlsx

Average Hours of Television Number of Hours

- Newfoundland/Labrador
- Prince Edward Island
- Nova Scotia
- New Brunswick
- Quebec

Average Hours of Television Number of Hours

- Average Hours of Television Number of Hours

Final Averages

Legend:
1 E
1 D
4 C
3 B
9 A
6 A+

Final Averages

Legend:
1 E
1 D
4 C
3 B
9 A
6 A+
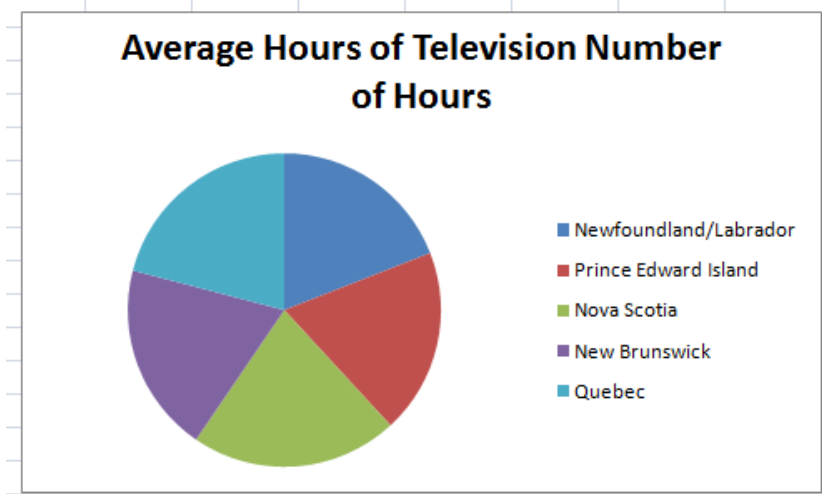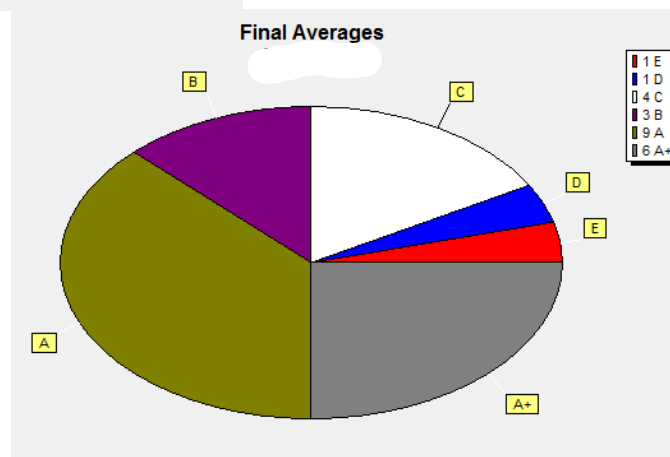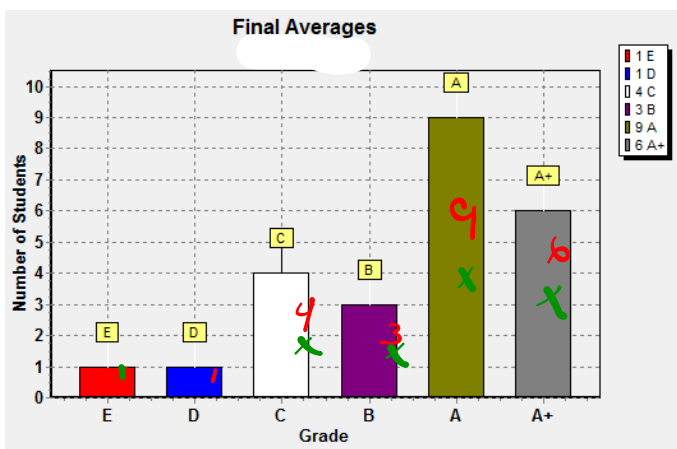
Misrepresenting Data

What does each graph represent?

The average price of a house in Victoria and Fraser Valley each year from 2002 - 205

At first glance which graph appears to show the greater difference in house prices? Why?

The graph on the left. There is a greater difference in height for each pair of bars in this graph.

Do the graphs display the same data?

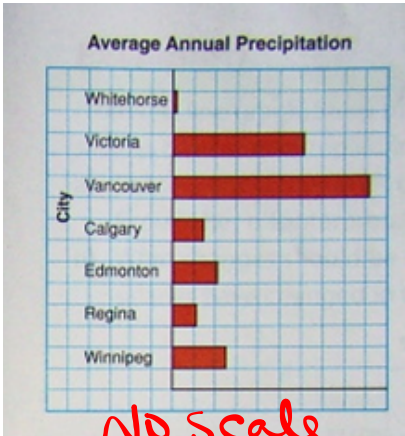Yes, when you read the price using the scale on each graph, you get the same price.

What is the scale of each graph?

Graph A → Start at $230 000   go up by $20 000
Graph B → start at 0   go up by $50 000
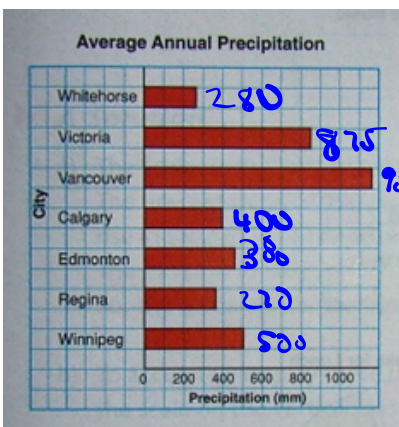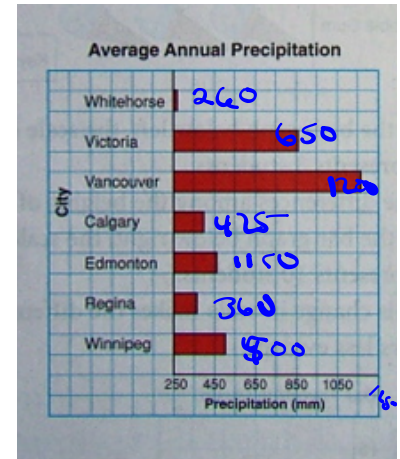
Does the scale on each graph start at zero?

Is the graph on the left incorrect? Do you think someone who uses this graph to show the difference in houses prices is lying?

No. Both graphs represent the data. However, the graph on the left emphasizes the difference in the average price of a house in Victoria and a house in Fraser Valley.

Average Annual Precipitation

No scale
→ Vancouver has the most Annual percipitation

1

Scale starts at ←
250mm goes up by
200

Average Annual Precipitation

City	Precipitation (mm)
Whitehorse	260
Victoria	650
Vancouver	1200
Calgary	425
Edmonton	1150
Regina	360
Winnipeg	500

250 450 650 850 1050

Average Annual Precipitation

City	Precipitation (mm)
Whitehorse	280
Victoria	875
Vancouver	950
Calgary	400
Edmonton	380
Regina	220
Winnipeg	500

0 200 400 600 800 1000

→ Start scale at 0, goes up by 200mm
→ Read Better

There are many ways in which graphs can be drawn to **misrepresent data**. Graphs like these may be found in the media to create false impressions.

How could a circle graph be misleading?

 - Sectors may be treated differently to draw attention to it

How could a pictograph be misleading?

 - Different sized symbols

- No Key givven

How could a bar graph be misleading?

 - Different widths of bars

- No Scale given

- Scale may be too large or too small

How could a line graph be misleading?

 -Distance between points may not be proportional to the length of time between the recorded times.

- No Scale given

- Scale may be too large or too small

In this pictograph, the symbols have different sizes.
The three large ice-cream cone symbols give the impression
that bubble gum is the favorite flavour.
When the key is used, chocolate is the favourite flavour.

Our Favourite Ice Cream Flavours

Chocolate
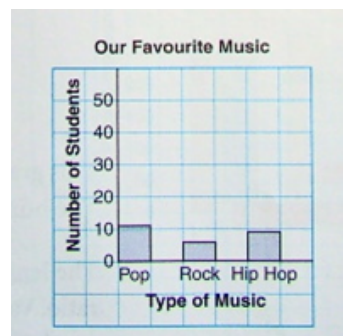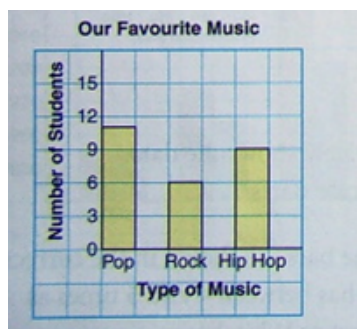
Vanilla

Bubble Gum

Key: = 3 students
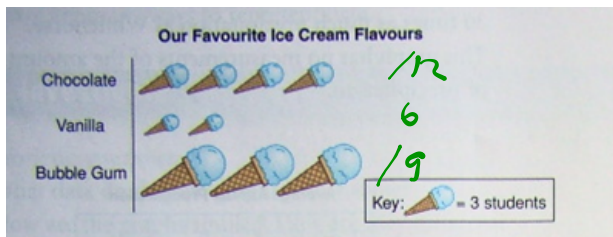
In this bar graph, the wider bar creates the impression
that many more boys than girls scored higher than 80%.
In fact, the number of girls who scored higher than 80%
is greater than the number of boys.

Grade 8 Students Who Scored Higher than 80% on a Math Test

Number of Students

Girls   Boys
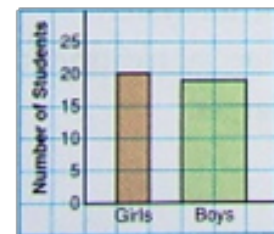
In the bar graph below left, the scale on the vertical axis is 1 square r epresents 3
students. The difference among the heights of the bars are easily seen.

In the graph below right, the scale on the vertical axis is 1 square   represents 10
students. This change in scale makes the difference among the heights of the
bars less evident.

Our Favourite Music

Number of Students

Pop   Rock Hip Hop
Type of Music

Our Favourite Music

Number of Students

Pop   Rock Hip Hop
Type of Music

A part of a graph may be treated
differently to draw attention to it.
A milk company uses this circle graph
to draw attention to the milk sector.
The sector for milk is not as large as
the sector for water, but the special
treatment makes it seem larger.

Favourite Drinks for Lunch

Milk

Water

Juice

Pop

From this line graph, Shiva made the conclusion that
salaries have almost tripled in 6 years.

Salaries Up!

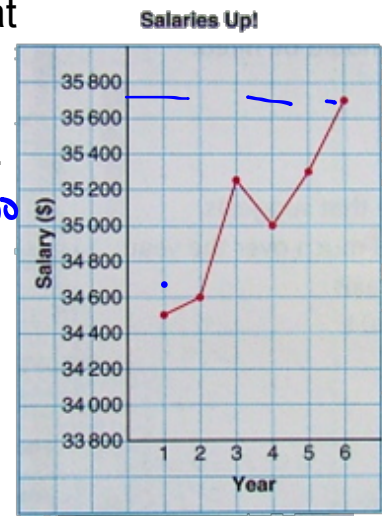a) Shiva's conclusion is not consistent with the data.
   Explain her misinterpretation.   RANGE??? $99000
   In order to triple $34 500 you would need $99 000

b) What changes should be made to the graph to
   accurately show how salaries have changed in
   6 years?
   Scale on vertical axis should start at 0.
   Zoomed in

$34 500 1st sal
$35 700 is last Year Sal

http://www.shodor.org/interactivate1.0/elementary/discussions/
ElemGraphsdiscussion.html

Class/Homework

Page 399 - 401

#3,#4, #5,

Monday ????below

Attachments

gr 8 u7 dm graphs with excel.xlsx

Using Spredsheets 1.xlsx