1. Data Management

Materials: envelope **-** survey information

1.   **You have been hired to report the findings of a survey to a conference for people who are interested in starting video rental stores. These people will use the information that you present to help them purchase the videos that they will rent in their stores. Your report needs to be clear, concise and convincing. You will use your graph as an transparency for the overhead projector.**

   Use a tally to sort and record the information provided in the envelope.

2.   **Show all your work to calculate the percentages and the degrees needed to represent the data on a circle graph.**

3.   **Prepare a circle graph to display the information.**

4.   **Write a paragraph or two on your findings.**

When you have completed this station,
place answer sheet in your portfolio

Label your portfolio entry.

Please tidy up the station.

2. Data Management

Materials: calculator

1. **The following are student marks for a final math exam.**

79	26	67	89	99
67	69	80	56	79
96	91	67	79	45
90	89	75	84	59
89	75	56	52	77
74	69	71	60	67

2. **Organize the data in a stem-and-leaf plot.**

3. **Calculate the mean, median and mode.**

4. **Prepare a box-and-whiskers graph. You will need to find the extremes, and the first and third quartiles.**

5. **Analyse the data and write a few sentences about your box-and-whiskers graph.**

When you have completed this station,
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3. Data Management

Materials: calculator

data sheet

1.   Use the information about the heights of the boys and girls in the room to create a double stem-and-leaf plot.

2.   Calculate the mean, median and mode for the boys and for the girls.

4.   Prepare two box-and-whiskers graph to represent the heights of the boys and the heights of the girls . You will need to find the extremes, and the first and third quartiles.

5.   **a)**   Analyse the data and compare your findings for the boys with those from the girls.

b)   How do you think the graphs would have looked in grade 6 or 7? Explain your reasoning.

c)   What changes would you expect in grade 12? Explain your reasoning.

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4. Data Management

Materials: calculator
                   data
                   spreadsheet
                   activity sheet

1.   **On the activity sheet, use the data to construct a scatterplot. You can do this by hand or on a spreadsheet.**

2.   **a)**   **Sketch a line that appears to follow the pattern of your points. There should be about as many points above the line as there are below the line.**

           b)   **Why do you think we call this line _the line of best fit_ ?**

3.   **Complete the activity sheet.**

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5. Data Management

Materials: calculator

1.   **Four students are going on a camping trip. They agree to share the equipment and supplies evenly but can not agree on what fair loads would be.**

They recorded the following:

food	4.75 kg
tent	7.0 kg
axe	2.75 kg
sleeping bags	1.75 kg each
guitar	5.3 kg
heater/stove	2.75 kg
utensils	2.2 kg
charcoal	4.0 kg
hammock	3.5 kg

2.   **Organize the data in a stem-and-leaf plot.**

3.   **Calculate the mean, median and mode.**

4.   **Prepare a box-and-whiskers graph. You will need to find the extremes, and the first and third quartiles.**

5.   **Decide who takes what to make it as fair as possible.**

Jo-Ann	Brie
Marcelle	Jolene

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Materials: calculator

1.   Give a set of 10 different numbers with a mean of 12.

2.   List 6 numbers where the mean is greater than the median.

3.   What two values could be added to the set if numbers below so that the mode is 15?

   5   8   8   15   20   25

4.   The mean of the results of a quiz is 5.
      The median is also 5 and the mode is 6.
      The extremes of the 13 marks are 2 and 10.

   a)   List the marks that could produce these results.

   b)   If a mark of 15 was added to the list, how would each of the following change?

      i.   the mean?
      ii.   the median?
      iii.   the mode?
      iv.   the extremes?

5.   Explain why each of the following people might select the mean, median or mode in a set of data.

   a)   A store owner deciding on what size shoes to order.
   b)   Someone moving to a new city and looking at housing costs.
   c)   Reporting the average score on a test.

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Materials: calculator

Janice is a sales manager in a department store. She must maintain average (mean) daily sales of at least $8500. Sales for the first four days of the week are $7530, $8475, $6550, $7155. The store is not open on Sunday.

1.   What sales will Janice need to make on Friday and Saturday to come in over the target?

2.   Discuss whether or not it is likely that Janice will achieve her target.

3.   Explain how your answer would change if you had been told the time of the year. For example, the week of December 17 to December 24 and the week of January 6 to January 13? Research to find the trends for sales throughout the year for a store. Report your findings and include your thoughts on other factors that may affect the number of sales per month.

4.   Why do you think stores need to maintain average daily sales? From your findings in number 3, do you think that stores have the same "quota" (average daily sales) for each day throughout the year or do you think the quota varies from month to month?

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8. Data Management

Materials: calculator

1.   **The mean mark on four tests is 78%.**
     What mark is needed on the next test to increase the mean to 80%?

2.   **State seven prices, where the median is $3.00, the highest price is $20.00 and the lowest price is $1.00.**

3.   **The number of passengers in different busses was recorded. The mean was 46 and the median was 47.**

     a)   **If 20 passengers rode on each bus, what would the new mean and median be?**

     b)   **If each passenger paid $1.25 to ride the bus, what would be the mean and the median amount of money collected?**

4.   **In your own words define the mean, median and mode.**

When you have completed this station,
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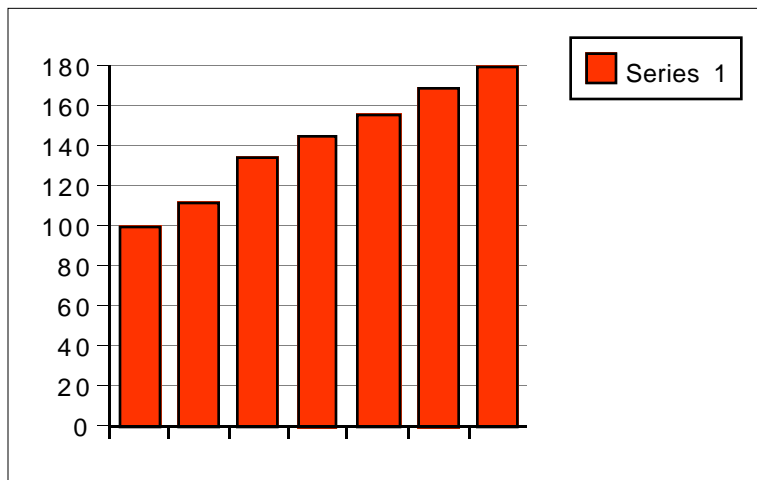Label your portfolio entry.

Please tidy up the station.

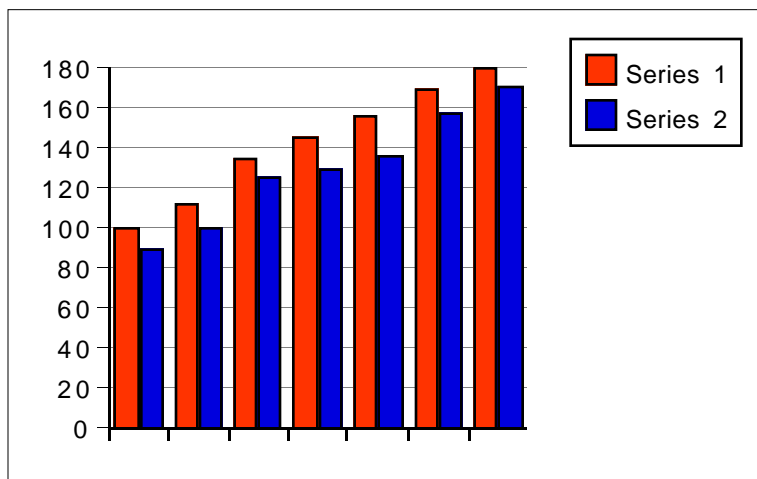**1.** Make a chart similar to the one below to give the advantages and disadvantages of each of the following graphs. Also include a real-life situation where one would be used.

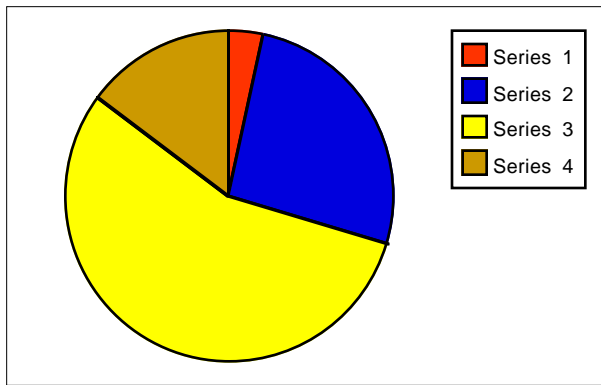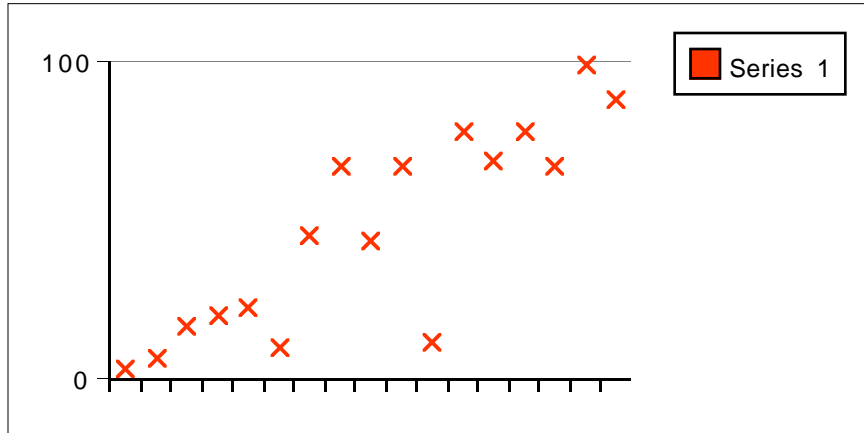| Graph	Advantages	Disadvantages	Real-life examples

A.

B.

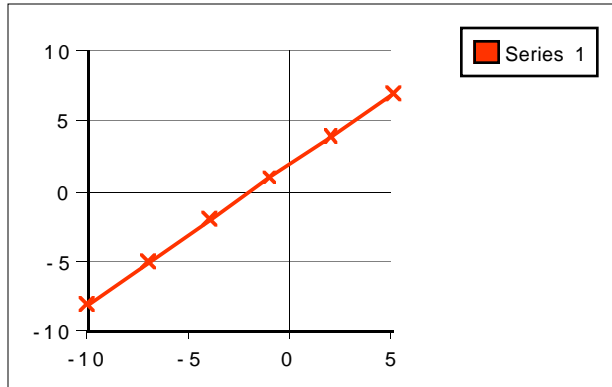**Please turn the card over.**
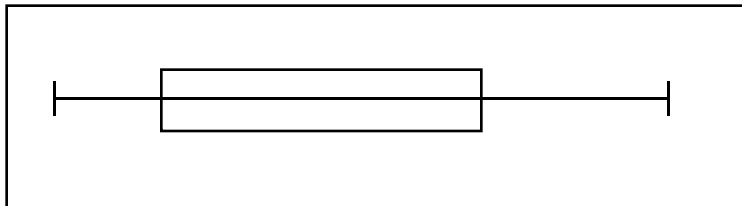
C.

D.

E.

F.

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10. Data Management

Materials: graphs

The graphs provided at this station are examples of how information on graphs can be distorted.

1.   Examine each one carefully to find out how the information was distorted.

2.   Explain how the information was distorted in each case and give the reason why you think it was distorted.

3.   In brochures, newspapers and other resources find other examples of misleading information on graphs.

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Please tidy up the station.

11. Data Management

Materials: spinner (four 90° sections) or
4-sided dice or
bag with 4 different cards

A breakfast cereal company has randomly placed one of four prizes in each cereal box it manufactures. Consumers are challenged to collect all four in the collection.

1. Use a Monte Carlo simulation to determine how many boxes need top be purchased in order to be sure you will collect at least one of each prize. Copy and complete the chart below to document the number of spins/throws/picks required to get at least one of each 1, 2, 3, or 4, which represent each prize.

Trial	Prize 1	Prize 2	Prize 3	Prize 4	Total Spins/Throws/Picks
1					
2					
3					
4					
5					
…					

2. Explain how you would use the different trials to determine your answer.

3. How could companies change the odds in a country as large as Canada?

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Materials:　　　toothpicks
　　　　　　　　　chart paper

1. **Draw vertical lines on large chart paper exactly 2 toothpick lengths apart.**

2. **Toss 100 toothpicks randomly on the chart paper.**

3. **Record any toothpick that touches a line as a "hit".**

4. **Calculate the ratio of the number of tosses and the number of hits.　Record.**

5. **Repeat two more times.　Record. Compare results.**

6. **What variables could you change in this investigation to further compare results?**

7. **Test your ideas and record.**

When you have completed this station,
answer sheet in your portfolio.
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13. Data Management

Materials:

Farmers need information about their crops. They need to know the amount of insecticides and herbicides to use as well as what kind they must use.

1 . How do farmers and scientists predict the the number and species of insect pests in their crops?

2 . How do farmers and scientists predict the the number and variety of weeds in their crops?

3 . How is this information used by the Department of Agriculture?

When you have completed this station,
answer sheet in your portfolio.
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Materials: computer
                     calculator (TI-82)

A soft drink company placed a lucky liner in the caps of half of their 1-L bottles. Derek said he bought five bottles and each bottle had a lucky liner in it. How could you use computer-generated or calculator-generated random numbers to simulate the situation and find the probability of finding five lucky liners? Explain your strategies and report your findings.

If a computer or a calculator are not available, use another method to design a simulation to find the probability of finding five lucky liners. Explain your strategies and report your findings.
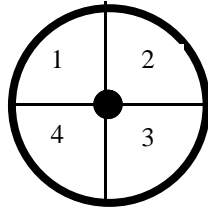
When you have completed this station,
answer sheet in your portfolio.
Label your portfolio entry.
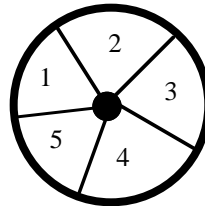
Please tidy up the station.

15. Data Management

Materials: spinner with four equal sections
spinner with five equal sections

Spinner A   **Spinner B**

A number spun on on Spinner A is multiplied a number spun on Spinner B.

1 . Experiment to see if you can determine the probability of the product being 5 or less. Draw a diagram or table to explain your reasoning.

2 . Experiment to see if you can determine the probability of the product being even. Draw a diagram or table to explain your reasoning.

3 . Experiment to see if you can determine the probability of the product being a multiple of 5. Draw a diagram or table to explain your reasoning.

4 . Can how you can calculate the probabilities described above without spinning the counters.

5 . What is the probability of the product being 1?

When you have completed this station,
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Please tidy up the station.

16. Data Management

Materials: three pennies

You toss three pennies.

1.   What is the probability that they will all land heads?

2.   What other events are possible?

3.   Are all events equally likely? Explain.

4.   What is the probability of getting two heads and one tail?

5.   Justify your answer b using pennies to illustrate all possible outcomes.

When you have completed this station,
answer sheet in your portfolio.
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Please tidy up the station.

17. Data Management

Materials: coins

What is the probability of having exactly one boy and one girl in a family of five?

Design a simulation using coins to answer the question.

When you have completed this station,
answer sheet in your portfolio.
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Please tidy up the station.

Materials: bag with letters "chesterfield"
                          bag with colored cubes

Find the bag labelled "chesterfield" and check to see that all the letters are there.

1 . Draw out a letter and record the letter on a tally sheet.

2 . Replace the letter and repeat the experiment several times.

3 . Based on the results of the experiment, what is the probability of drawing the letter E?

Find the bag containing cubes. There are three different colors in the bag.

1 . Without looking, pick one cube. Use a tally to record the color.

2 . Replace the cube and repeat nine more times.

3 . From your tally, predict the number of each color of the cubes in the bag. <u>Do not look ing the bag></u>

4 . Repeat 1 through 3 three more times.

5 . What do you notice about the experimental probability of picking the colors and predicting the number of each color of cube in the bag as the number of trials gets larger?

6 . You may now compare the number of cubes with you predictions. How close were you?

When you have completed this station,
answer sheet in your portfolio.
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Materials: six-sided die
eight-sided die
four-sided die

Find the six-sided die and the eight-sided die.

1. List all the possible outcomes.

2. Roll the dice 100 times and use a tally to record the sum for each roll.

3. Explain why the sums of 2 and 14 occur fewer times that the a sum of 7 or 8.

4. What are the favorable outcomes if you want a sum of 10?

Find the four-sided dice.

1. Roll the four-sided dice 100 times and after each trial, record the total results in a chart.

2. What do you notice about the experimental probability of tossing 2 as the number of trials gets larger?

When you have completed this station,
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Please tidy up the station.