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## Data Management Curriculum Map

The activities introduce students to techniques of interpreting and managing data through graphing and probability studies and presents a sequential program of work. There are 16 graphing and 5 probability worksheets and activities, including surveys, board games, and games of chance, reinforce basic skills, in addition, subtraction, multiplication, and division.

**Introduction** – Includes Teacher Notes

**Answer Key** – Includes both graphing and probability

### Graphing Activities

- Activity 1 Age of North Americans
- Activity 2 Occupations
- Activity 3 Reading a Line Plot
- Activity 4 Reading a Scatter Plot
- Activity 5 Reading a Scatter Plot
- Activity 6 Reading a Double Bar Graph
- Activity 7 Reading a Bar Graph
- Activity 8 Constructing a Bar Graph
- Activity 9 Random Sampling
- Activity 10 Plotting Mutual Funds
- Activity 11 Creating a Stem and Leaf Plot
- Activity 12 Making a Histogram
- Activity 13 Television Network Ratings
- Activity 14 Creating a Survey
- Activity 15 How Many M & M's?
- Activity 16 M & M's Part Two

### Probability Activities

- Activity 17 Television Probability
- Activity 18 Music Style Probability
- Activity 19 Scrabble
- Activity 20 Roll the Dice – Multiplication and Division
- Activity 21 Yahtzee!



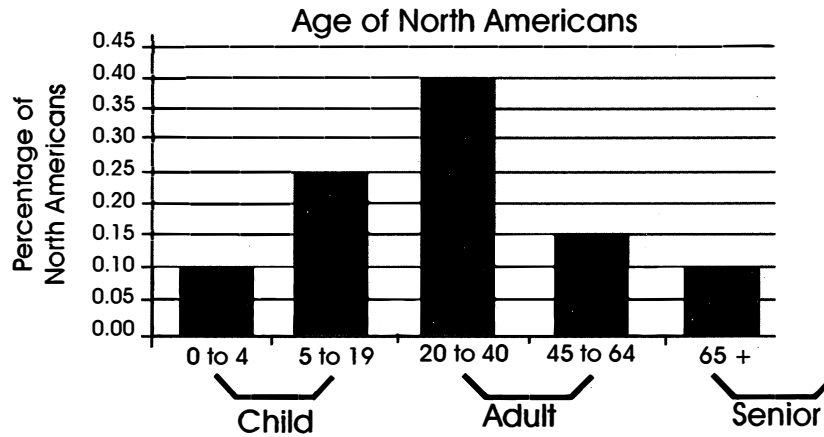
# Data Management - Level Six

## Age of North Americans

### Activity One

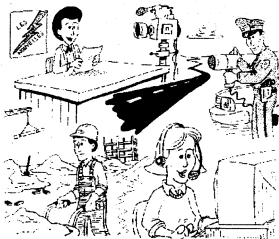


A recent survey showed the following breakdown of ages of North Americans.



Answer the following questions with complete sentences.

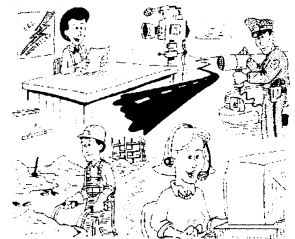
1. What percentage of the population is between the ages of 45 and 64?  
\_\_\_\_\_
2. What age group has the highest percentage of people?  
\_\_\_\_\_
3. Why do you think this is?  
\_\_\_\_\_
4. What percentage of the people are children?  
\_\_\_\_\_
5. If you surveyed 100 people, how many people would be adults?  
\_\_\_\_\_
6. If you surveyed 1 000 people, how many people would be under the age of 20?  
\_\_\_\_\_
7. If you surveyed 12 000 people, how many people would be under the age of 5?  
\_\_\_\_\_
8. How do you think this graph compares to your community?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



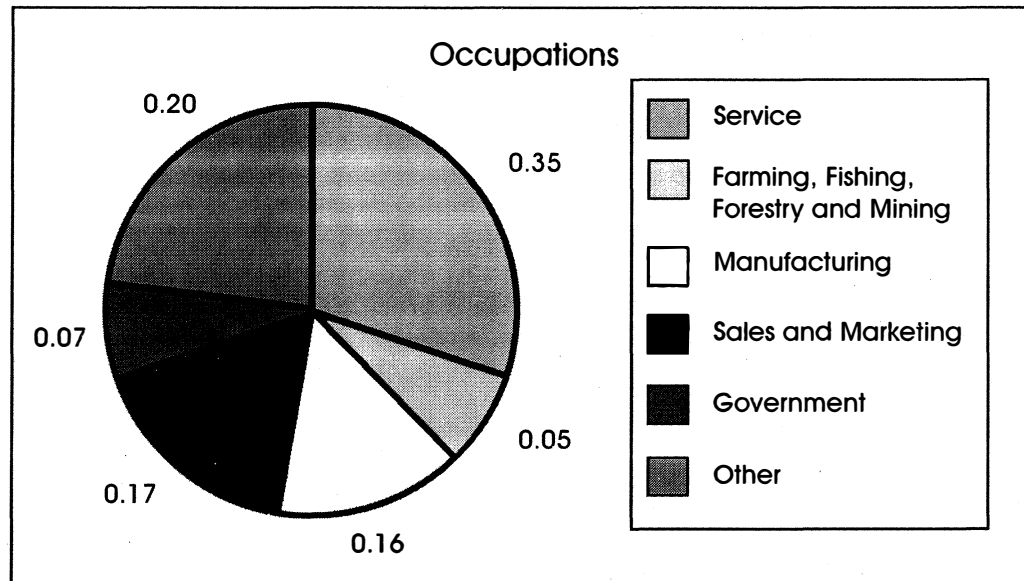
# Data Management - Level Six

## Occupations

### Activity Two



The following graph was created after the results of the recent employment numbers were released by the government.

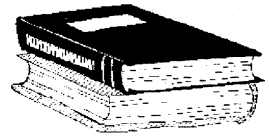


Answer the following questions with complete sentences.

1. What percentage of people work in Sales and Marketing?  
\_\_\_\_\_
2. What is the difference between the percentage of people who work in Service and the percentage of people who work in Farming, Fishing Forestry and Mining?  
\_\_\_\_\_
3. What fraction of the people worked in Other?  
\_\_\_\_\_
4. How is this graph like or unlike your community?  
\_\_\_\_\_
5. Using this information, create a bar graph of the occupations. Which graph better represents the data? Why do you think this?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



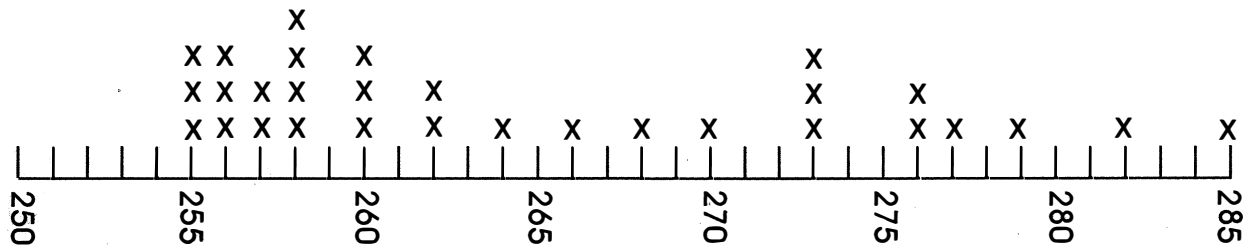
# Data Management - Level Six



## Reading a Line Plot

### Activity Three

Mark decided to survey his class to find out how many pages were in the books that his classmates were reading for their book reports. He recorded his findings below.



Answer the following questions with complete sentences.

1. What was the range of data?

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2. How many students were in Mark's class?

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3. What was the mean?

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4. What was the median?

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5. What was the mode?

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6. Do more students prefer thinner books or thicker books?

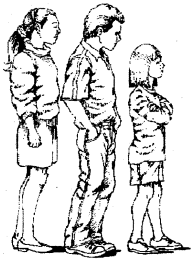
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7. How are the data distributed?

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8. What conclusions if any can you draw from this graph?

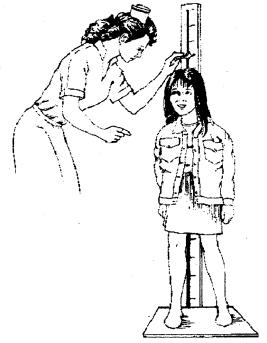
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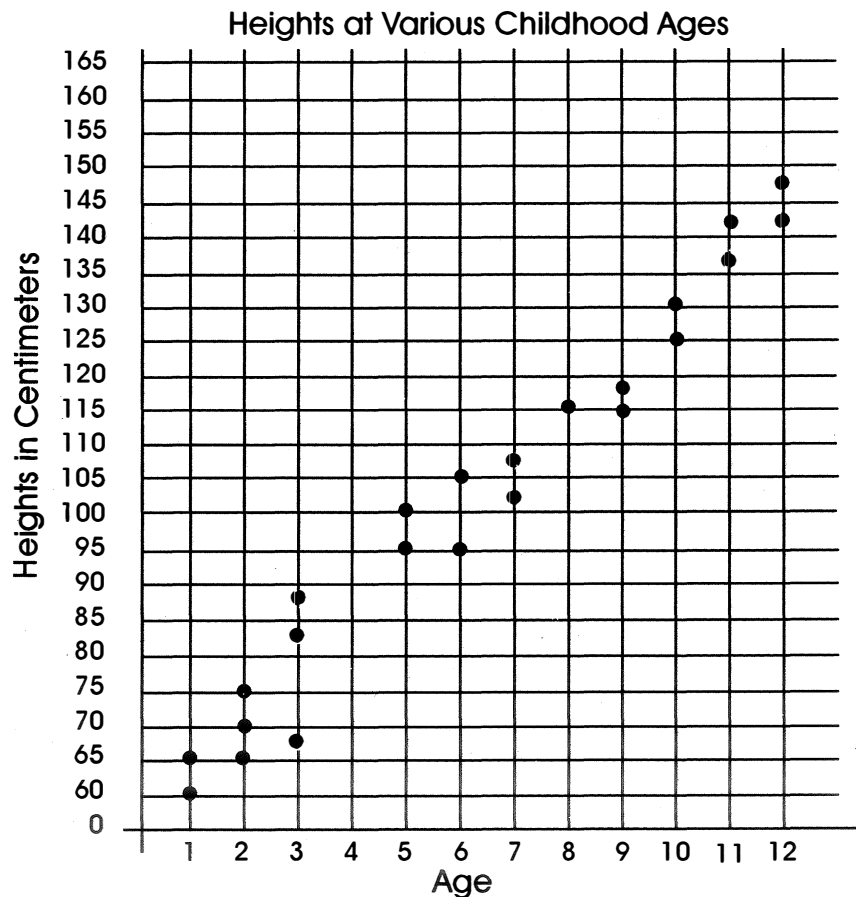
# Data Management - Level Six

## Reading a Scatter Plot

### Activity Four



Sarah researched the heights of several children at different ages. She plotted the results on a scatter plot, shown below



Answer the following questions with complete sentences.

1. Is there a trend in the data? How do you know?

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2. What conclusions can you draw about the relationship of height and age?

---

3. Would this scatter plot look similar if we surveyed children in another country?

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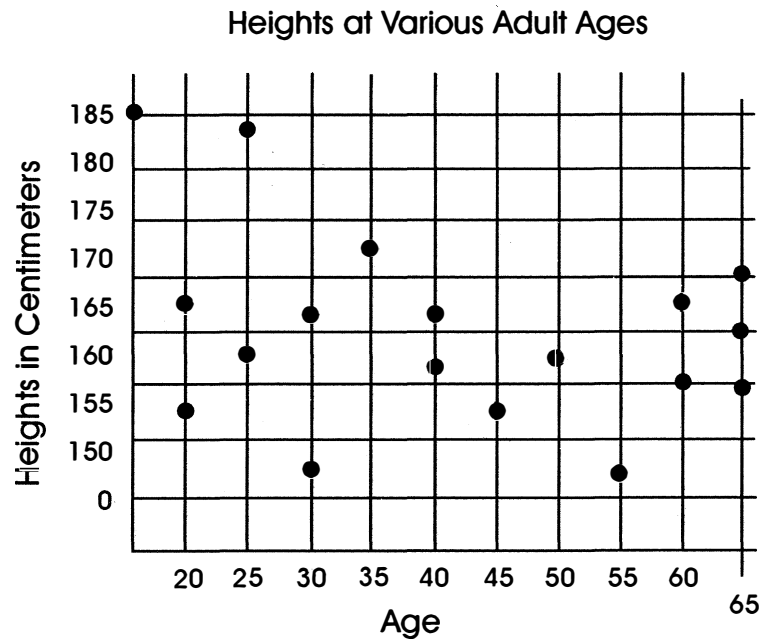
## Data Management - Level Six

### Reading a Scatter Plot

#### Activity Five



Sarah then decided to research the heights of adults at different ages. She plotted the results on a scatter plot, shown below.



Answer the following questions with sentences.

1. Is there a trend in the data? How do you know?

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2. What conclusions can you draw about the relationship of height and age?

---

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3. Compare this scatter plot to the one in Activity Four. What comparisons can you make?

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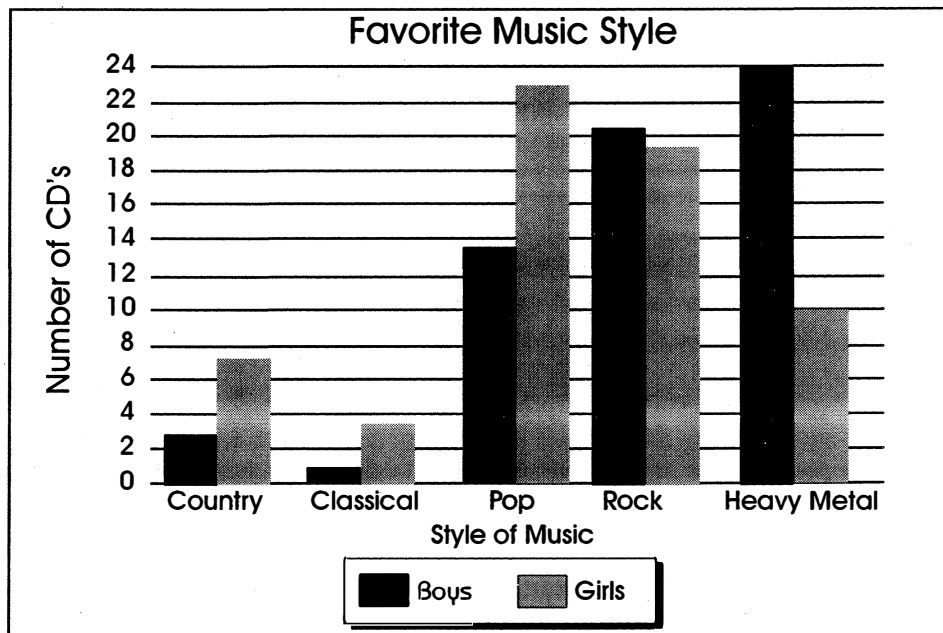
## Data Management - Level Six

### Reading a Double Bar Graph

#### Activity Six



A group of teenagers at the local high school completed a survey on the number and type of CDs that they owned. The results of the survey are shown below.



Answer the following questions with complete sentences.

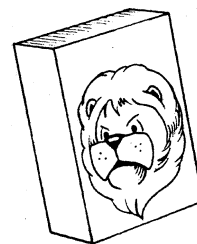
1. What was the favorite type of music for boys?  
\_\_\_\_\_
2. What was the favorite type of music for girls?  
\_\_\_\_\_
3. What was the least favorite music for the boys?  
\_\_\_\_\_
4. What was the least favorite music for the girls?  
\_\_\_\_\_
5. How many people participated in the survey?  
\_\_\_\_\_
6. What was the most popular type of music overall?  
\_\_\_\_\_



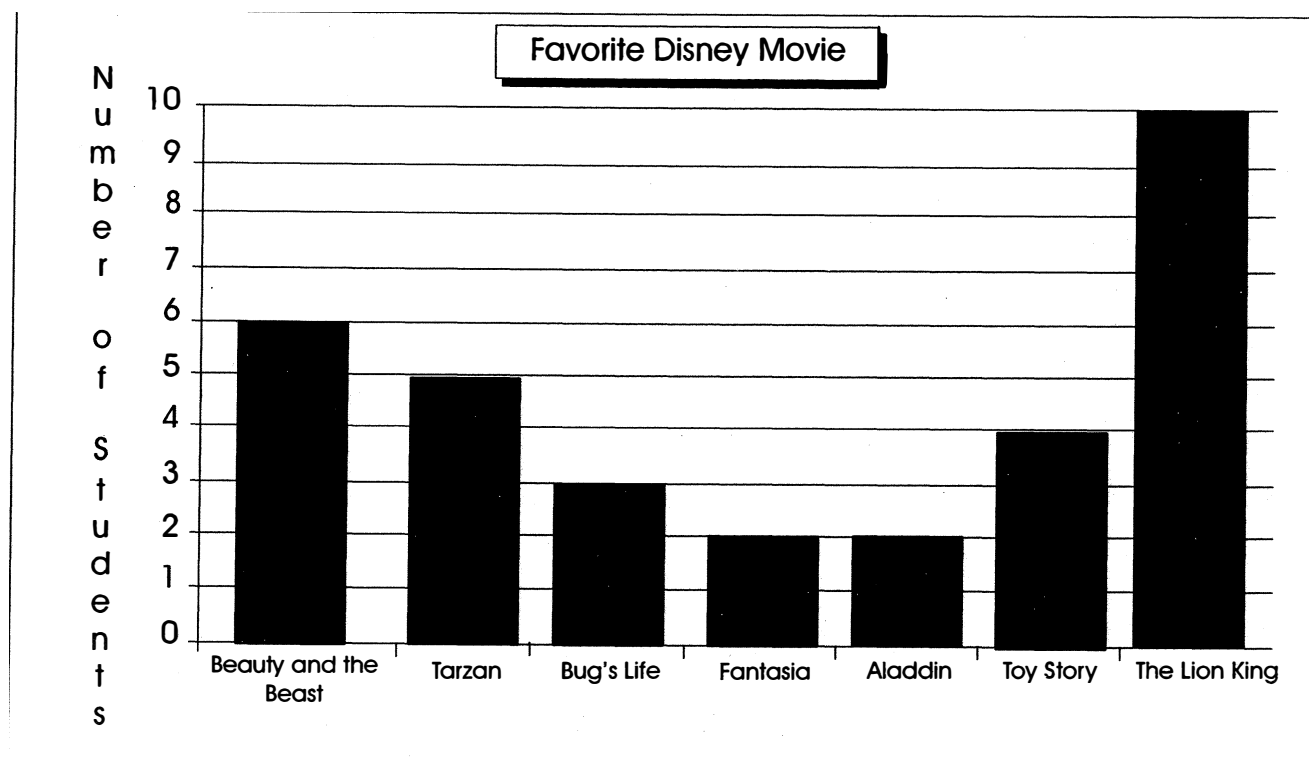
# Data Management - Level Six

## Reading A Bar Graph

### Activity Seven



Karen surveyed her grade six class to find out what their favorite animated Disney movies were. The results of the survey are shown below.



Answer the following questions with sentence answers.

1. What was the favorite movie?

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2. What was the least favorite movie?

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3. How many people participated in the survey?

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4. How could this survey have been difficult for some students to answer?

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5. Which movie was your favorite?

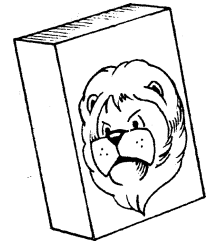
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## Data Management - Level Six

### Constructing a Bar Graph

#### Activity Eight



Using her previous research, Karen decided to divide her findings by gender. This is what she found.

| Name of Movie        | Boys | Girls |
|----------------------|------|-------|
| Beauty and the Beast | 2    | 4     |
| Tarzan               | 4    | 1     |
| Bugs Life            | 0    | 3     |
| Fantasia             | 1    | 1     |
| Aladdin              | 1    | 1     |
| Toy Story            | 1    | 3     |
| Lion King            | 7    | 3     |

Answer the following questions with complete sentences.

1. On another piece of paper, design a double bar graph to show Karen's latest results.
2. Which was the favorite movie among the boys?  
\_\_\_\_\_
3. Which was the favorite movie among the girls?  
\_\_\_\_\_

# Data Management - Level Six

## Random Sampling

### Activity Nine



Felipe wanted to know how to create a random sample for his survey. He wanted to ask the opinion of all the students in his school. There were 500 students in his school. Asking each student would take too long.

On the lines provided, write four suggestions that Felipe could use in order to make his survey random and ensure that he asked every grade level.

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Which suggestion would you use and why?

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# Data Management - Level Five

## Plotting Mutual Funds

### Activity Ten



Collect the business section of your local newspaper for a week.  
Track the growth of two selected mutual funds over the period of five days.  
Record your data in the chart provided.

| Day       | Mutual Fund #1 | Mutual Fund #2 |
|-----------|----------------|----------------|
| Monday    |                |                |
| Tuesday   |                |                |
| Wednesday |                |                |
| Thursday  |                |                |
| Friday    |                |                |

Plot the data on a broken line graph, using two different colors to represent the two mutual funds.

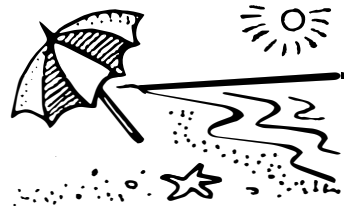
Include a legend, appropriate headings and a scale.





## Data Management - Level Six

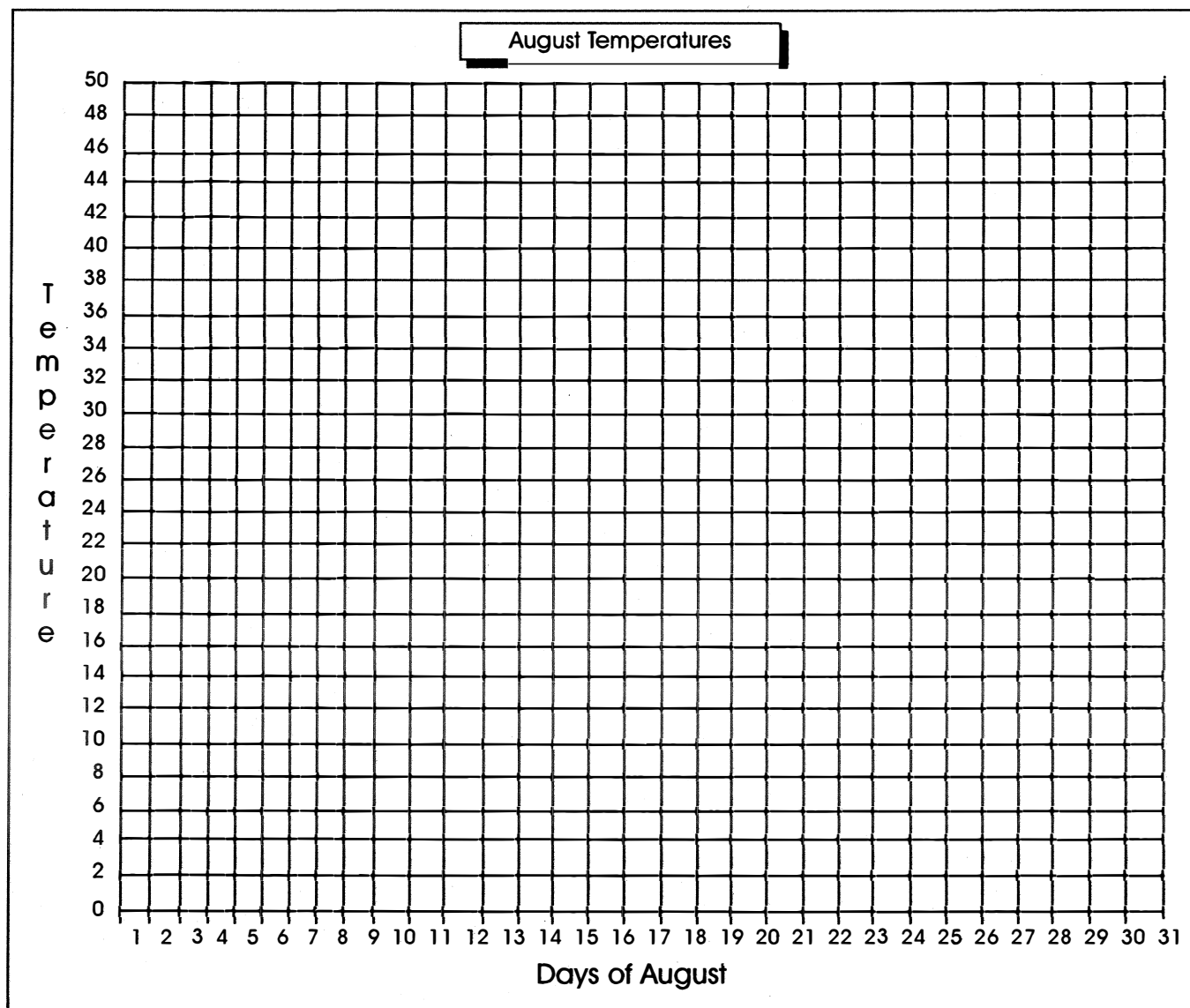
### Activity Eleven (Continued)



6. Why do you think there was a dip in the temperatures in the second week of August?

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7. Plot the data in a scatter plot.



8. Is there a trend in the data?

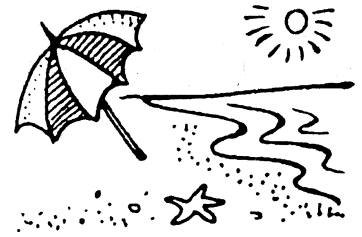
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## Data Management - Level Six

### Making a Histogram

#### Activity Twelve

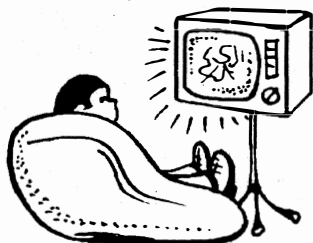


- A) Using the information from the previous activity, group the data in the following table.

| Temperature Interval | Tally |
|----------------------|-------|
| 15 - 20°             |       |
| 21 - 25°             |       |
| 26 - 30°             |       |
| 31 - 35°             |       |
| 36 - 40°             |       |
| 41-45°               |       |

- B) Using grid paper, create a histogram of the data in your tally chart.

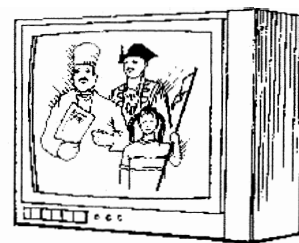
Be sure to include your title, labels and scale.



# Data Management - Level Six

## Television Network Ratings

### Activity Thirteen



Television stations were recently ranked according to their popularity. The following results were printed in the local newspaper.

| Time of Night | Networks | Percent of People Tuned In |
|---------------|----------|----------------------------|
| 6:00 pm       | ABC      | 46%                        |
|               | NBC      | 23%                        |
|               | CBC      | 25%                        |
|               | TSN      | 6%                         |
| 7:00 pm       | ABC      | 22%                        |
|               | NBC      | 60%                        |
|               | CBC      | 8%                         |
|               | TSN      | 10%                        |
| 8:00 pm       | ABC      | 8%                         |
|               | NBC      | 35%                        |
|               | CBC      | 2%                         |
|               | TSN      | 55%                        |
| 9:00 pm       | ABC      | 42%                        |
|               | NBC      | 5%                         |
|               | CBC      | 21%                        |
|               | TSN      | 32%                        |
| 10:00 pm      | ABC      | 17%                        |
|               | NBC      | 24%                        |
|               | CBC      | 39%                        |
|               | TSN      | 20%                        |

- Construct a quadruple bar graph for the given data.

Use one graph to show all four networks.

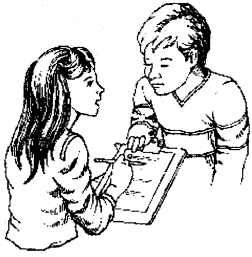
Use colors or shadings to differentiate between the networks.

Include a legend.

- What network appeared to be the least popular?

- What observations can you make based on the graph?

# Data Management - Level Six



## Creating a Survey

### Activity Fourteen



Create a survey of five questions that you would like to ask the student population.

Determine a method of making your survey random.

Once you have collected your data, organize it and determine the best way to represent it.

Draw two types of graphs or plots to represent your findings.

### Survey Questions

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How will I make it random?

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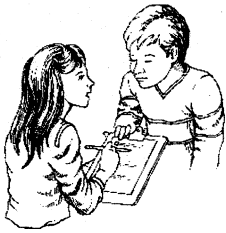
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How many students will be surveyed in total?

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## Data Management - Level Six



### SURVEY SHEET

Thank you for taking the time to complete my short survey. Your honest answers are appreciated.

1. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
2. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
3. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
4. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
5. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



## Data Management - Level Six

### How Many M & M's

#### Activity Fifteen



Open a small package of M & M's.

How many do you have? Count them. \_\_\_\_\_

Arrange them in rows according to color.

List how many of each color you have in the following table.

| Color | Number |
|-------|--------|
|       |        |
|       |        |
|       |        |
|       |        |
|       |        |
|       |        |
|       |        |
|       |        |
|       |        |

Compare your results to those of a partner. Add your partner's results to your own. With your partner and using your combined results, determine:

- how many of each color are in your classroom
- which color is the most common
- which color is the least common
- make a pictograph of your results and your partner's results.



# Data Management - Level Six

## How Many M&M's? Part Two

### Activity Sixteen



Collect the findings of the other pairs in your class. Record your findings in the following table.

| Color | # | # | # | # | # | # | # | # | # | # | # | # | # | # | # | Total |
|-------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-------|
|       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |       |
|       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |       |
|       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |       |
|       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |       |
|       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |       |
|       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |       |
|       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |       |
|       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |       |

Compare the total class findings with your original findings and your partner's original findings.

1. What similarities did you notice?

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2. What differences did you notice?

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3. What is the most common color in the class?

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4. What is the least common color in the class?

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5. Do you think your results represent a random survey of numbers and colors in M&M packages? Why or Why not?

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6. If you bought another package of M&M's what is the probability of having the same number of candies?

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7. Which color are you most likely to pull out blindly, using the class data?

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