**Lesson 3.1 – One & Two Variable Data**

***Goal: Examine differences between one and two variable data and explore how each are represented***

***TERMINOLOGY***

* ***Variable***: an unknown value/attribute that can be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* ***One-variable data***: gives the measures of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Counts the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of occurrences for possible values of the variable
  + Often displayed as:
  + Analyzed using: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, as well as range, variance, and standard deviation (recall grade 11)
* ***Two-variable data***: gives the measures of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Compares the values of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ variables
  + Often displayed as:
  + Analyzed using: correlations, linear regression, and non-linear regression (more to come…)
* ***Mean***: the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of a set of one-variable data
* ***Median***: the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ value in a SORTED set of one-variable data
* ***Mode***: the most \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ occurring value in a set of one-variable data
* ***Correlation***: measures the strength of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ between \_\_\_\_\_\_\_ variables

***Identifying Situations of One and Two Variable Data***

Ask yourself: 1. What is this information measuring?

2. How can this information be displayed?

3. How can this information be analyzed?

***Example 1*** State whether each situation involves one-variable or two-variable data. **Justify** your answer.

1. Noah researches annual hours of sunshine in Canadian cities.
2. A study compares the amount of time people spend watching TV and the amount of time reading.

***Types of Data***

* ***Categorical Data***: Non-numerical data that is arranged into categories

Examples:

* ***Discrete Data***: Numerical data that is distinct (specific) and can be counted

Examples:

* ***Continuous Data***: Numerical data that can hold any value

Examples:

***Displaying Data***

|  |  |
| --- | --- |
| **Bar Graph**   * One variable data * Shows frequency of  each data value * Used for **discrete or categorical data** | **Histogram**   * One variable data * Shows frequency of a  **RANGE** of data values * Used for **continuous data** |
| **Pie Chart**   * One variable data * Shows proportion of  each data value * Used for **categorical data** | **Scatter Plot**   * Two variable data * Shows two pieces of  info for each item * Used for **discrete or continuous data** |

***Deciding Which Graph to Draw***

Ask yourself: 1. Is it one or two variable data?

2. What type of data is it?

***Example 2*** For a class project, Dylan surveyed students about their part-time jobs. The data is shown below.

|  |  |  |
| --- | --- | --- |
|  | **Hours Spent at Part-Time Job** | |
| **Student** | **Week Hours** | **Weekend Hours** |
| Anya | 5.0 | 12.5 |
| Ellen | 8.0 | 12.0 |
| Fiona | 17.0 | 8.0 |
| Aaron | 0.0 | 16.5 |
| Leila | 10.0 | 16.0 |
| Mason | 9.5 | 8.0 |
| Petra | 15.0 | 6.0 |

1. What type of graph would be best to show how many   
   hours each student worked on the weekend?
2. What type of graph would best show a possible relationship between weekday and weekend hours?

**Practice**: Page 133 #1 – 5, 8