Unit 47   Statistics and Probability

1. Statistics

    A. **Statistics** involves the summarizing of data.

    B. This unit will cover a statistical study of these quiz scores:
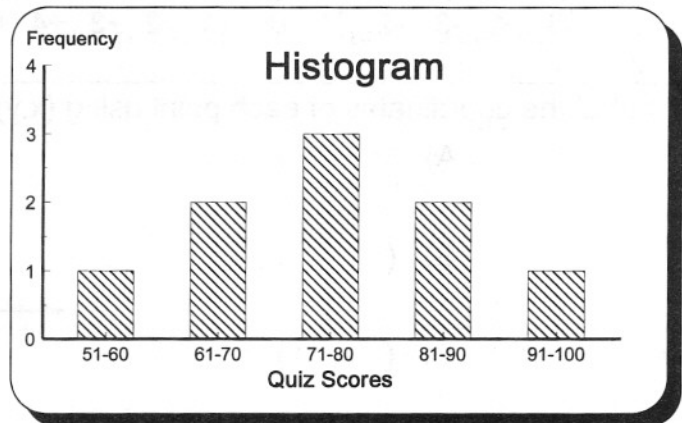
| 54, 63, 66, 75, 75, 75, 84, 87, 96 |

    C. **Frequency** means how often something occurs.

        1. Each quiz score is called an **outcome**.

        2. Grouping outcomes results in these useful descriptions of the data.

Frequency Table	
Scores between	Frequency
51 - 60	1
61 - 70	2
71 - 80	3
81 - 90	2
91 - 100	1
Total	9

Histogram

    D. Measuring the central tendency of data (the typical score)

        1. **Mean**

            a. The mean is the **average** of the numbers.

            b. Our mean is 75.

$$\frac{54 + 63 + 66 + 75 + 75 + 75 + 84 + 87 + 96}{9} = \frac{675}{9} = 75$$

        2. **Median**

            a. The median is the **middle number**.

            b. Here the 5th number is the middle number.

            c. Our median is 75.

| 54, 63, 66, 75, 75, 75, 84, 87, 96 |

        3. **Mode**

            a. The mode is the number that happens **most often**.

            b. Our mode is 75.

        4. Analysis

            a. Notice how all the answers are 75.

            b. This is because the numbers are balanced around 75.

            c. When data is perfectly balanced, it is said to be **normal**.

            d. Many events (like quiz scores) **may be** balanced around their mean.

            e. The mean, median, and mode are not equal for data that is not normal.

    E. Measuring the spread of data

        1. The **range** of data is the highest number minus the lowest number.

        2. Our range is 42. High - Low = 96 - 54 = 42