

## Objective

By the end of this lesson, you will be able to understand and apply statistical concepts and probability principles.

## Materials and Prep

- Pen/pencil
- Calculator (optional)

Before starting this lesson, it would be helpful if you have a basic understanding of mathematical operations, including addition, subtraction, multiplication, and division.

## Activities

### 1. Activity: Collecting and Analyzing Data

Choose a topic of interest, such as favorite colors or preferred pizza toppings. Survey your friends or family members and collect data. Create a bar graph or pie chart to represent the collected data. Analyze the results and draw conclusions based on the data.

### 2. Activity: Probability Experiment

Take a deck of playing cards and shuffle them thoroughly. Draw a card and record the outcome. Repeat this process multiple times and keep track of the number of times each outcome occurs. Calculate the experimental probability of drawing each card suit. Compare the experimental results with the theoretical probabilities.

## Talking Points

### • Introduction to Statistics:

- "Statistics is the branch of mathematics that deals with the collection, analysis, interpretation, presentation, and organization of data."
- "It helps us make sense of the world by providing methods to summarize and analyze information."

### • Types of Data:

- "Data can be classified into two main types: categorical and numerical."
- "Categorical data represents characteristics or qualities, while numerical data represents quantities or measurements."

### • Probability Basics:

- "Probability is the measure of the likelihood of an event occurring."
- "It is represented by a number between 0 and 1, where 0 indicates impossibility and 1 indicates certainty."
- "Probability can be calculated by dividing the number of favorable outcomes by the total number of possible outcomes."

### • Experimental vs. Theoretical Probability:

- "Experimental probability is based on actual outcomes from an experiment or observation."
- "Theoretical probability is based on mathematical calculations and assumptions."
- "Experimental results may vary due to sample size and random variations, while theoretical probabilities are more precise."