Foundation of PROBABILITY:

OVERVIEW:

The theory of probability is an important branch of mathematics with many practical applications in the Physical, medical, biological and social sciences. An Understanding of this theory is essential to understand Weather reports, medical findings, political doings and the State lotteries. Students have many misconceptions about Probability situations.

PURPOSE:

The purpose of this activity, is to begin the Process of helping students to learn the basic principles of probability.

OBJECTIVES:

As a result of this activity the student will:

1. conduct an experiment
2. determine if a game is "fair"
3. collect data (table)
4. interpret data (range, mode, median)
5. display data (line graph)
6. conduct analysis of game (tree diagram)
7. state and apply the rule (definition)for probability

Introduction to Statistics:

At the completion of this course, students will be able to:

1- Compute expectation values from discrete and continuous distributions

2- Define three properties of expectation values

3- Compute moments of a distribution

4- Compute permutations and combinations and to distinguish when

each is applicable to a given problem

5-Use Sterling's approximation to compute factorials of large numbers

Probability and Statistics Objectives:

Probability and Statistics is one of the most important branches of the mathematical sciences. Knowledge of these topics is critical to decision-making and to the analysis of data. Using concepts of probability and statistics, individuals are able to predict the likelihood of an event occurring, organize and evaluate data, and identify the significance of statements. Connections between content and applications to the students' world will be emphasized. Graphing utilities such as calculators and computers will be used to enhance student learning and to aid in the solution of practical problems. Prerequisites for this course are successful completion of Algebra II and Geometry.

At the completion of this course, students will be able to:

1- Organize and display data using tables and graphs.

2- Prepare frequency distribution tables for qualitative and quantitative data.

3- Construct bar graphs, histograms, and polygons for such data.

4-Calculate summary statistics (Included among these are)

(i) Measure of central tendency (ii) Measure of dispersion

5-Calculate common probability distributions and apply those calculations to solve Problems based on biological studies

6- Make decisions about some characterizations of a population based on sample information.

7- Draw conclusions about the population from which the sample is taken.

8- Estimate population parameters from statistic which the sample was drawn.