

MATH CURRICULUM SUMMARY

The purpose of the Math Curriculum summary is to present an overview of the Probability and Statistics curriculum. Parents are the intended audience of the Math Curriculum summary.

Data, Charts, & Graphs

- Data & Variables: Types and Characteristics
- Frequency Distributions
- Graphs: Pie Charts, Pictograms, Time Series, Bar Charts, Histogram, Frequency Polygon, Stem and Leaf, Ogive
- Interpretation of Graphs: Center, Spread, Shape, Outliers
- Uses and Limitations of Graphing

Descriptive Statistics

- Measures of Center: Mean, Median, Mode
Weighted Mean
Impact of Skew, usefulness of each measure
- Measures of Spread: Range, Variance, Standard Deviation
- Quartiles, Interquartile Range, and Boxplots

Designing and Conducting a Study

- Population vs. Sample: Parameter vs. Statistic
- Biased and Unbiased Sampling techniques: Convenience, Voluntary Response, Simple Random, Stratified Random, Systematic, Cluster
- Issues associated with Sampling: sources of bias, confounding variables

Bivariate Data

- Scatterplots
- Correlation and other relationships between variables
- Linear Regression
- Least Squares Regression Line
- Making Predictions – Interpolating & Extrapolating
- Evaluating errors
- Goodness of Fit and coefficient of determination
- Other regression models: Quadratic, Exponential

Counting Techniques

- Tree Diagrams and Sample Spaces
- Multiplication Rule (Fundamental Counting Principle)
- Permutations
- Combinations

Probability

- Definition of Probability and Odds
- Finding Probabilities with tree diagrams, counting principles, and empirical data
- Simulations
- Events and Probability Distributions of Random Variables
- Rules of Probability: Complement & Addition Rules (with Venn Diagrams)
- Two-way Tables and Conditional Probability
- Multiplication of Independent Events and General Multiplication Rule

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PROBABILITY AND STATISTICS GRADE 12

Discrete Random Variables

- Probability Distribution of a Random Variable
- Expected Value and Standard Deviation of a Random Variable
- Games and Fairness
- Transformations by a constant/effect on mean & standard dev.
- Binomial Expansion & Pascal's Triangle
- Characteristics of Binomial Distributions
- Finding probabilities by formula and with binomial table

Normal Random Variables

- Properties of a normally distributed variable
- Standardized Scores & Relative Position
- Area under the standard normal curve – using the table
- Applications of Normal Distribution
- Inverse Normal Distribution and Applications

Count Data and Two-way Tables

- Two way tables
- Constructing and reading
- Conditional & marginal distributions
- Grouped and Stacked Bar Graphs
- Chi Square Distribution and Testing of Count Data (optional)
- Expected Counts
- Goodness of Fit Test
- Test of Independence

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STATISTICS**

PROBABILITY AND

GRADE 1