

Perry Local School Guaranteed and Viable Curriculum

Statistics

Data Analysis and Probability

MAST.5.1

Collect, organize, summarize, evaluate, display and draw inferences from data.

MAST.5.1.a

Summarize and evaluate data using a frequency table.

MAST.5.1.b

Summarize and evaluate data using histograms and Pareto charts.

MAST.5.1.c

Summarize and evaluate data using stem-and-leaf plots, pie charts and scatter diagrams.

MAST.5.2

Compute and apply measures of central tendency and variance

MAST.5.2.a

Compute and apply the mean, median, mode and midrange of a data set.

MAST.5.2.b

Compute and apply the standard deviation of a data set.

MAST.5.2.c

Compute and apply the variance of a data set.

MAST.5.3

Compute and apply measures of position.

MAST.5.3.a

Compute and compare z-scores for values within the same data set.

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MAST.5.3.b

Compute and compare z-scores for values from different data sets.

MAST.5.3.c

Calculate and apply quartiles, deciles and percentiles.

MAST.5.4

Use probability to represent and solve problems involving uncertainty.

MAST.5.4.a

Find the probability of a simple event occurring.

MAST.5.4.b

Find the probability of a compound event occurring using the Addition Rule.

MAST.5.4.c

Find the probability of a compound event occurring using the multiplication rule.

MAST.5.4.d

Use the Multiplication Rule and the Complements Rule to find the probability of “at least one.”

MAST.5.4.e

Use the multiplication rule to find the conditional probability of an event occurring.

MAST.5.5

Apply the concept of a discrete random variable to generate and interpret discrete probability distributions.

MAST.5.5.a

Identify random variables.

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MAST.5.5.b

Distinguish between discrete and continuous random variables.

MAST.5.5.c

Find probabilities using probability distributions.

MAST.5.5.d

Use appropriate formulas to calculate the mean, variance and standard deviation for a probability distribution.

MAST.5.5.e

Use probabilities to determine whether results are “unusual.”

MAST.5.5.f

Calculate the expected value of a discrete random variable.

MAST.5.5.g

Identify a binomial probability distribution.

MAST.5.5.h

Use the Binomial Distribution Table to evaluate and analyze data.

MAST.5.5.i

Calculate the mean, variance and standard deviation for a binomial distribution.

MAST.5.6

Find probabilities using the standard normal distribution.

MAST.5.6.a

Apply the concept of continuous random variables.

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MAST.5.6.b

Find probabilities when given specific z-score values.

MAST.5.6.c

Find z-score values when given particular probabilities.

MAST.5.6.d

Find probabilities by graphing area under the standard normal curve.

MAST.5.6.e

Use the standard normal distribution to solve binomial probability problems.

MAST.5.7

Find probabilities involving a nonstandard normal distribution.

MAST.5.7.a

Find probabilities after converting nonstandard values to standard z-scores.

MAST.5.7.b

Find a specific value when given a particular probability involving a nonstandard normal distribution.

MAST.5.7.c

Use and apply the Central Limit Theorem to find probability.

MAST.5.8

Estimate the value of population parameters.

MAST.5.8.a

Given sample data, estimate the population mean, variance and standard deviation.

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MAST.5.8.b

Determine sample size required to estimate the population mean.

MAST.5.8.c

Determine sample size required to estimate the population proportion.

MAST.5.9

Use and apply the fundamentals of hypothesis testing.

MAST.5.9.a

Use sample data to test hypotheses about population parameters.

MAST.5.9.b

Given a claim, identify the null hypothesis and the alternative hypothesis and express both in symbolic form.

MAST.5.9.c

Given a particular significance level, identify the critical value(s).

MAST.5.9.d

Given a claim and sample data, calculate the value of the test statistic.

MAST.5.9.e

Given a claim, state the conclusion of a hypothesis test in simple, non-technical terms.

MAST.5.9.f

Test claims about a large sample mean.

MAST.5.9.g

Test claims about a small sample mean.

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MAST.5.10

Use statistical tables to evaluate, analyze and compare data to make inferences.

MAST.5.10.a

Use the Standard Normal Distribution Table to evaluate and analyze data.

MAST.5.10.b

Use the T Distribution Table to evaluate and analyze data.

MAST.5.10.c

Use data from two samples to make inferences about the populations from which they come.

MAST.5.10.d

Make inferences about two means using independent and large samples.

MAST.5.10.e

Make inferences about two means using independent and small samples.

MAST.5.11

Differentiate and classify between various types of data into levels of measurement.

MAST.5.11.a

Differentiate between quantitative and qualitative data.

MAST.5.11.b

Differentiate between discrete and continuous data.

MAST.5.11.c

Classify data into nominal, ordinal, interval and ratio levels of measurement.

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Statistics

MAST.5.12

Identify the uses and abuses of statistics.

MAST.5.12.a

Identify bad samples and small samples.

MAST.5.12.b

Identify loaded questions and misleading graphs.

MAST.5.12.c

Identify distorted percentages and deliberate distortions.

MAST.5.13

Identify and apply the various methods of sampling.

MAST.5.13.a

Identify and apply the concepts of random, systematic, convenience, stratified and cluster sampling.

MAST.5.14

Differentiate between and apply the concept of an event and its complement.

MAST.5.14.a

Identify a simple event.

MAST.5.14.b

Identify the complement of a simple event.

MAST.5.14.c

Apply the concepts of an event and its complement.

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Statistics

MAST.5.OTH.1

Differentiate between and apply the various rounding rules of statistics.

MAST.5.OTH.2

Use the graphing calculator where appropriate as a resource in applying statistical concepts.

MAST.5.OTH.3

Use statistical software, where appropriate, as a resource in applying statistical concepts.

MAST.5.OTH.4

Differentiate between and apply the concepts of sampling and non-sampling errors.

MAST.5.OTH.4.a

Recognize a sampling error.

MAST.5.OTH.4.b

Recognize a non-sampling error.

MAST.5.OTH.4.c

Apply the concepts of sampling and non-sampling errors.