

NCTM Standards and Expectations

DATA ANALYSIS STANDARDS GRADES 9-12

NCTM STANDARDS	9-12 NCTM EXPECTATIONS
Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them	<ul style="list-style-type: none"> • Understand the differences among various kinds of studies and which types of inferences can legitimately be drawn from each • Know the characteristics of well-designed studies, including the role of randomization in surveys and experiments • Understand the meaning of measurement data and categorical data, of univariate and bivariate data, and of the term variable • Understand histograms, parallel box plots, and scatterplots and use them to display data • Compute basic statistics and understand the distinction between a statistic and a parameter
Select and use appropriate statistical methods to analyze data	<ul style="list-style-type: none"> • For univariate measurement data, be able to display the distribution, describe its shape, and select and calculate summary statistics • For bivariate measurement data, be able to display a scatterplot, describe its shape, and determine regression coefficients, regression equations, and correlation coefficients using technological tools • Display and discuss bivariate data where at least one variable is categorical • Recognize how linear transformations of univariate data affect shape, center, and spread • Identify trends in bivariate data and find functions that model the data or transform the data so that they can be modeled
Develop and evaluate inferences and predictions that are based on data	<ul style="list-style-type: none"> • Use simulations to explore the variability of sample statistics from a known population and to construct sampling distributions • Understand how sample statistics reflect the values of population parameters and use sampling distributions as the basis for informal inference • Evaluate published reports that are based on data by examining the design of the study, the appropriateness of the data analysis, and the validity of conclusions • Understand how basic statistical techniques are used to monitor process characteristics in the workplace

NCTM Principals and Standards for School Mathematics 2000