

A Comparison of Standards for K-12 Statistics Education in the U.S., Canada, and New Zealand

Katherine Taylor Halvorsen
khalvors@smith.edu
Department of Mathematics & Statistics
Smith College
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U.S. Common Core (CC) Mathematics Standards	Western & Northern Canadian Protocol (WNCP) Curriculum	New Zealand Curriculum Mathematics Standards
WHO For ALL students K-12 STEM students will finish CC in K-10 and take more advanced math in Grades 11 & 12	A Grades K-9 curriculum for ALL students and two curriculum strands starting at Grade 10: 1.Apprenticeship/workplace math, and 2. Foundations of math & pre-calculus	A national curriculum for ALL students, Years 1-13.
WHEN By January 2011, CC officially adopted by 38 states and DC; two states have tentatively adopted, and two more are considering adoption.	Developed in British Columbia and adopted by BC, Manitoba, Saskatchewan, Alberta, Yukon and NW Territories in 1993. Adopted by Nunavut, New Brunswick, Prince Edward Island and Newfoundland in 2000. Grades 10-12 implementation in 2010-2012.	Implementation in English-medium schools completed in 2010. Maori-medium school implementation begun in 2010.
WHAT Standards for Practice and Standards for Content	Standards for Content	Standards for Practice and Standards for Content

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Primary School Standards: K-5 Statistics in K-5 contained in "Measurement and Data" strand. The summary overview at each grade level states, "Represent and interpret data." Data analysis in K-5 supports mathematical ideas, particularly number and operations, but statistical thinking is not developed. The CC does not introduce the four-step process in K-5: formulate a question; design and implement a data collection plan; analyze the data; interpret the results of the analysis in context.	Grades 2-5 The Data Analysis strand first introduced in Grade 2. General overview statement at each grade states: Collect, display and analyze data to solve problems. Specific skills include gathering and recording data about self and others, constructing and interpreting pictographs, line plots, and bar graphs.	Levels 1, 2, & 3 Statistical investigations: Using the statistical enquiry cycle: posing and answering questions; gathering, sorting and counting, and displaying category data; discussing the results. Statistical literacy: Interpreting statements made by others from statistical investigations and probability activities; comparing statements with the features of simple data displays; and evaluating the effectiveness of different displays in representing the findings of a statistical investigation

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Middle school: Grades 6-8 Statistics and probability strand introduced in grade 6. In MS students work with descriptive statistics, distribution, variability, random sampling, univariate comparisons of two data sets, and patterns of association in bivariate data sets. CC does not introduce the four-step process in 6-8: formulate a question; design and implement a data collection plan; analyze the data; interpret the results of the analysis in context.	Middle School: Grades 6-9 Grade 6: Draw and interpret line graphs; select and use method for data collection, graph data and analyze graph. Grade 7: Mean, median, mode, range, effects of outliers, circle graphs. Grade 8: Critique data collection methods. Grade 9: Recognize design effects on data collection, select and defend choice of census versus sample	Levels 3 & 4 Data analysis strand continued through levels 3 & 4 Statistical investigations: Conducting investigations using the statistical enquiry cycle; gathering, sorting, and displaying multivariate category and whole number data and simple time-series data to answer questions; identifying patterns and trends in context, within and between data sets; communicating findings, using data displays. Statistical literacy: Evaluating the effectiveness of different displays in representing the findings of a statistical investigation, and evaluating statements made by others about the findings of statistical investigations.

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High School: Grades 9-12 The Statistics and Probability Strand: Summarizing and interpreting categorical and quantitative data (for one and for two variables, includes interpreting linear models) Understand and evaluate random processes underlying statistical experiments. Make inferences and justify conclusions from sample surveys, experiments, and observational studies. The CC does not introduce the four-step process in 9-12.	High School: Grades 10-12 Apprenticeship and Workplace Mathematics: Grade 11: Solve problems that involve creating and interpreting graphs, including: bar graphs, histograms, line graphs, circle graphs. Grade 12: Mean, median, mode, outliers, weighted mean, <i>trimmed mean</i> , percentiles Foundations of Mathematics Grade 11: Standard deviation; normal distribution, z-score; confidence interval & level, margin of error Mathematics Research Project: includes collecting data and interpreting data with statistical methods.	High School: Levels 5-12 Level 5: Plan and conduct surveys and experiments (consider sources of variation) and evaluate statistical investigations undertaken by others. Level 6: Plan and conduct investigations using the statistical enquiry cycle (manage sources of variation through random sampling) and evaluate reports in the media. Level 7: Conduct surveys and experiments, evaluate data collection methods, make informal inferences, and identify sampling and non-sampling errors. Level 8: Similar to AP Statistics

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