



American Statistical Association

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Chris Minnich
Director of Standards
The Council of Chief State School Officers (CCSSO)

October 21, 2009

Dear Director Minnich,

On behalf of the American Statistical Association (ASA), we sincerely appreciate the opportunity to offer suggestions and to raise questions concerning the September 21, 2009 draft of *the College and Career Readiness Standards for Mathematics*. We put together a review group consisting of ASA members who are prominent statisticians, statistics educators, and members of the ASA/NCTM Joint Committee on Curriculum in Statistics and Probability. We have synthesized the group's recommendations into changes tracked in the standards themselves, which are attached. We are also including some additional general suggestions and comments below.

Our overall reaction to this document is very positive. Generally, the statistics, probability, and modeling components have the right spirit. The statistics component correctly emphasizes the importance of data, variation in data, and the role of randomness in data collection, analysis and interpretation.

We suggest considering adding "and Statistics" to the title of the document (as the College Board did in its standards) to read as *College and Career Readiness Standards for Mathematics and Statistics*. This would help emphasize the pivotal role of statistics in a 21st century education.

Perhaps our greatest concern is the limited role that data analysis, probability, and statistics appear to play in comparison to more classical mathematics in this proposed set of standards. Like so many textbooks, this document places probability and statistics at the end of the list. This appears to be a deliberate decision, since the content standards do not seem to have a natural order. We urge you to consider moving up statistics and probability or at least alphabetizing the list of content standards, so that no one looking at them would perceive that probability and statistics somehow play a lesser role than, say, coordinates. We'd certainly prefer that the finished product convey more clearly how essential it is for students to understand data, probability, and statistics to make decisions in the face of uncertainty. This skill set will serve them well in virtually any major or career and also in their personal lives. There is a strong case for increasing the prominence of data analysis, probability, and statistics in the K-12 curriculum, even if it means replacing some mathematical topics that will rarely, if ever, be used by students again.

It will be of vital importance to flesh out the standards with very good examples that use real data. The GAISE Pre-K – 12 Report (www.amstat.org/education/gaise) is a source of examples, along with materials from the other ASA-NCTM projects, specifically the Data-Driven Mathematics and Quantitative Literacy Series modules. I hope there will be another review period available once the examples for the statistics and probability strands are available. We would be happy to assist in providing or reviewing examples.

We appreciate the opportunity to review the current draft standards and hope we will also have the opportunity to review the upcoming grade level/course level standards, which will address details, clarify concepts, and enhance the utility of the standards for teachers and administrators. If you have any questions regarding our attached suggestions to the standards, please let us know. We would be happy to assist you in any way.

Sincerely,

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Director of Education

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