

*K-12 Statistics Resources*

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American Statistical Association Statistical Education of Teachers (SET) document]

<http://www.amstat.org/education/SET/SET.pdf>

The link below contains all ASA K-12 Statistics resources for teachers! This includes the books Bridging the Gap and Making Sense of Statistical Studies, the STEW website of statistical tasks and activities, and Statistics Teacher Network (STN) newsletter.

<https://www.amstat.org/education/index.cfm>

Pre-K-12 GAISE Framework and College GAISE

<https://www.amstat.org/education/gaise/index.cfm>

STN article on "Sequence of Activities"

<http://www.amstat.org/education/stn/pdfs/STN68.pdf>

Common Core Standards [Check out the Statistics standards]

<http://www.corestandards.org/Math>

National Council for the Teachers of Mathematics (NCTM) [Check out recently published Essential Understanding books for Statistics at grades 6-8 and grades 9-12 and the Navigating Through Data Analysis books for grades PreK-2, 3-5, 6-8, and 9-12]

<http://www.nctm.org>

Joint ASA-NCTM Statement on K-12 Teacher Preparation

[http://www.amstat.org/policy/pdfs/JointASA\\_NCTM\\_Statement.pdf](http://www.amstat.org/policy/pdfs/JointASA_NCTM_Statement.pdf)

MET1 and MET2 documents

<http://cbmsweb.org>

Project-SET [a wealth of statistics activities designed for secondary grades]

<http://project-set.com/>

Introduction to Data Science – NSF Grant project in Los Angeles Unified School District

<http://www.mobilizingcs.org>

Hollylynn Lee (NC State) MOOC: Teaching Statistics Through Data Investigations

<https://www.youtube.com/channel/UC8fVEPWMfELgqkx8h5vw23Q/playlists>

LOCUS project [sign up to take LOCUS tests and student work with commentary now available]

<https://locus.statisticseducation.org>

STN article on LOCUS assessment free response item [see page 13]

<http://www.amstat.org/education/stn/pdfs/STN83.pdf>

## **MP6 Attend to precision.**

### **Mathematical Description**

Mathematically proficient students try to communicate precisely to others. They try to use clear definitions in discussion with others and in their own reasoning. They state the meaning of the symbols they choose, including using the equal sign consistently and appropriately. They are careful about specifying units of measure, and labeling axes to clarify the correspondence with quantities in a problem. They calculate accurately and efficiently, express numerical answers with a degree of precision appropriate for the problem context. In the elementary grades, students give carefully formulated explanations to each other. By the time they reach high school they have learned to examine claims and make explicit use of definitions.

### **Statistical Description**

Statistically proficient students understand that precision in statistics is not just computational precision. In statistics, one must be precise about ambiguity and variability. Students understand that the statistical problem-solving process begins with the precise formulation of a statistical question that anticipates variability in the data collected that will be used to answer the question. Precision is also necessary in designing a data collection plan that acknowledges variability. Precision about the attributes being measured is essential. After the data have been collected, students are precise about choosing the appropriate analyses and representations that account for the variability in the data. They display carefully constructed graphs with clear labeling and avoid misleading graphs, such as 3-dimensional pie charts, that misrepresent the data. As students interpret the analysis of the data, they are precise with their terminology and statistical language. For example, they recognize that 'correlation' is a specific measure of the linear relationship between two quantitative variables and is not simply another word for 'association.' They recognize that 'skew' refers to the shape of a distribution and is not another word for 'bias.' Students can transition from exploratory statistics to inferential statistics by using a margin of error to quantify sampling variability around a point estimate. Students recognize that the precision of this estimate depends partially upon the sample size – the larger the sample size, the smaller the margin of error. As students interpret statistical results, they connect the results back to the original statistical question and provide an answer that takes the variability in the data into account. Statistically proficient students recognize that clear communication and precision with statistical language are essential to the practice of statistics.