

Understand and evaluate random processes underlying statistical experiments (Standard S.IC.1).	
Standard III.S.IC.1: Understand that statistics allow inferences to be made about population parameters based on a random sample from that population.	
Concepts and Skills to Master	
<ul style="list-style-type: none"> • Understand the importance of randomness in obtaining a representative sample from a population. • Understand the distinction between true random sampling and non-random sampling. (Asking arbitrary people on the street is an example of a non-random sample.) • Use data from a random sample to make an inference about a population. 	
Related Standards: Current Course	Related Standards: Future Courses
III.S.ID.4 , III.S.IC.3 , III.S.IC.4 , III.S.IC.6	AP Statistics

Support for Teachers

Critical Background Knowledge
<ul style="list-style-type: none"> • Give quantitative measures of center and variability and describe the overall pattern (6.SP.5c) • Understand generalizations about a population are valid only if the sample is representative of that population (7.SP.1) • Use data from a random sample to draw inferences about a population (7.SP.2) • Use measures of center and variability to draw informal comparisons between two populations (7.SP.4) • Use statistics appropriate to the shape of the distribution to compare center and spread (I.S.ID.2)
Academic Vocabulary
inference, parameter, population, statistic, sample, random, variability, standard deviation
Resources
Curriculum Resources : http://www.uen.org/core/core.do?courseNum=5630#71572

<p>Draw and justify conclusions from sample surveys, experiments, and observational studies. In earlier grades, students are introduced to different ways of collecting data and use graphical displays and summary statistics to make comparisons. These ideas are revisited with a focus on how the way in which data is collected determines the scope and nature of the conclusions that can be drawn from that data. The concept of statistical significance is developed informally through simulation as meaning a result that is unlikely to have occurred solely as a result of random selection in sampling or random assignment in an experiment. For S.IC.4, focus on the variability of results from experiments—that is, focus on statistics as a way of dealing with, not eliminating, inherent randomness (Standards S.IC.3–4, 6).</p>	
<p>Standard III.S.IC.3: Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.</p>	
<p>Concepts and Skills to Master</p>	
<ul style="list-style-type: none"> Recognize the purposes of and differences among sample surveys, experiments, and observational studies. Describe how randomization is used in well-designed surveys, experiments, and observational studies. 	
<p>Related Standards: Current Course</p>	<p>Related Standards: Future Courses</p>
<p>III.S.ID.4, III.S.IC.1, III.S.IC.4, III.S.IC.6</p>	<p>AP Statistics</p>

Support for Teachers

<p>Critical Background Knowledge</p>
<ul style="list-style-type: none"> Understand that random sampling is more likely to produce representative samples (7.SP.1)
<p>Academic Vocabulary</p>
<p>randomization, survey, experiment, observational study</p>
<p>Resources</p>
<p>Curriculum Resources: http://www.uen.org/core/core.do?courseNum=5630#71572</p>

Draw and justify conclusions from sample surveys, experiments, and observational studies. In earlier grades, students are introduced to different ways of collecting data and use graphical displays and summary statistics to make comparisons. These ideas are revisited with a focus on how the way in which data is collected determines the scope and nature of the conclusions that can be drawn from that data. The concept of statistical significance is developed informally through simulation as meaning a result that is unlikely to have occurred solely as a result of random selection in sampling or random assignment in an experiment. For S.IC.4, focus on the variability of results from experiments—that is, focus on statistics as a way of dealing with, not eliminating, inherent randomness (Standards S.IC.3–4, 6).

Standard III.S.IC.4: Use data from a sample survey to estimate a population mean or proportion; develop a margin of error through the use of simulation models for random sampling.

Concepts and Skills to Master

- Use simulation to demonstrate variability in sampling.
- Develop the concept of margin of error through the use of simulation models for random sampling. (Students in this course are not expected to use formulas to calculate the margin of error.)
- Understand that a margin of error can be used to create an interval of plausible values for the population parameter (observed sample statistic \pm margin of error).
- Use survey results to estimate a population mean or proportion.

Related Standards: Current Course

[III.S.ID.4](#), [III.S.IC.1](#), [III.S.IC.3](#), [III.S.IC.6](#)

Related Standards: Future Courses

AP Statistics

Support for Teachers

Critical Background Knowledge

- Understand that random sampling is more likely to produce representative samples ([7.SP.1](#))
- Generate multiple samples of the same size to gauge variation in estimates or predictions ([7.SP.2](#))
- Use statistics appropriate to the shape of the distribution to compare center and spread ([I.S.ID.2](#))

Academic Vocabulary

simulation model, population mean, population proportion, sampling variability, margin of error, plausible values

Resources

[Curriculum Resources](http://www.uen.org/core/core.do?courseNum=5630#71572): <http://www.uen.org/core/core.do?courseNum=5630#71572>

Draw and justify conclusions from sample surveys, experiments, and observational studies. In earlier grades, students are introduced to different ways of collecting data and use graphical displays and summary statistics to make comparisons. These ideas are revisited with a focus on how the way in which data is collected determines the scope and nature of the conclusions that can be drawn from that data. The concept of statistical significance is developed informally through simulation as meaning a result that is unlikely to have occurred solely as a result of random selection in sampling or random assignment in an experiment. For S.IC.4, focus on the variability of results from experiments—that is, focus on statistics as a way of dealing with, not eliminating, inherent randomness (Standards S.IC.3–4, 6).	
Standard III.S.IC.6: Evaluate reports based on data.	
Concepts and Skills to Master	
<ul style="list-style-type: none"> Use tools of data analysis (measures of center and spread, variability, sampling, trends, etc.) to make sense of and interpret reports. (Students in this course are not expected to use formal tools of inference, such as hypothesis testing and confidence intervals.) 	
Related Standards: Current Course	Related Standards: Future Courses
III.S.ID.4 , III.S.IC.1 , III.S.IC.3 , III.S.IC.4	AP Statistics

Support for Teachers

Critical Background Knowledge (Access Background Knowledge)
<p>All things statistics:</p> <ul style="list-style-type: none"> Understand that a data set can be described by its center, spread, and overall shape (6.SP.2-3) Use graphical summaries of data (6.SP.4) and numerical summaries of data (6.SP.5) Use random sampling to draw inferences about a population (7.SP.1-2) or between populations (7.SP.3-4) Investigate patterns of association in bivariate data (8.SP.1-4) Summarize, represent, and interpret univariate data (I.S.ID.1-3) and bivariate data (I.S.ID.6-9) Understand conditional probability and independence (II.S.CP.1, 4-5) Summarize, represent, interpret, and compare data on two categorical or quantitative variables (II.S.ID.5 and III.S.ID.4) Understand the tools of data analyses (III.S.IC.1, 3-4)
Academic Vocabulary
All previous statistical academic vocabulary
Resources
Curriculum Resources : http://www.uen.org/core/core.do?courseNum=5630#71572