

Use random sampling to draw inferences about a population (7.SP.1-2)	
Standard 7.SP.1: Understand that statistics can be used to gain information about a population by examining a sample of the population, and that generalization about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling is more likely to produce representative samples and support valid inferences.	
Concepts and Skills to Master	
<ul style="list-style-type: none"> • Understand that representative samples can be used to make valid inferences about a population. • Collect a random sample. • Understand that a random sample increases the likelihood of obtaining a representative sample of a population. 	
Related Standards: Current Course	Related Standards: Future Courses
7.RP.1 , 7.RP.2 , 7.RP.3 , 7.SP.2 , 7.SP.3 , 7.SP.4 , 7.SP.5	III.S.IC.1 , 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"> • Understand ratio concepts and use ratio reasoning to solve problems (6.RP.3) • Anticipate that samples vary (6.SP.1) • Understand data distributions can be described by their center, spread, and overall shape (6.SP.2) • Understand the likelihood of a chance event (7.SP.5)
Academic Vocabulary
Inference, valid, sample, random sample, representative sample, population
Resources
Curriculum Resources : http://www.uen.org/core/core.do?courseNum=5170#71330

Use random sampling to draw inferences about a population (7.SP.1-2)	
Standard 7.SP.2: Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions. <i>For example, estimate the mean word length in a book by randomly sampling words from the book; predict the winner of a school election based on randomly sampled survey data. Gauge how far off the estimate or prediction might be.</i>	
Concepts and Skills to Master	
<ul style="list-style-type: none"> • Use a sample to make an inference, then explore the variation in estimates or predictions based on multiple samples from the same data. • Make inferences about a population based on multiple samples. 	
Related Standards: Current Course	Related Standards: Future Courses
7.RP.1 , 7.RP.2 , 7.RP.3 , 7.SP.1 , 7.SP.3 , 7.SP.4	III.S.ID.4 , III.S.IC.1 , 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"> • Summarize quantitative data using quantitative measures of center and variability (6.SP.5) • Understand that random sampling tends to produce representative samples (7.SP.1)
Academic Vocabulary
Inference, valid, sample, random sample, representative sample, population
Resources
Curriculum Resources : http://www.uen.org/core/core.do?courseNum=5170#71330

Draw informal comparative inferences about two populations (7.SP.3-4)	
Standard 7.SP.3: Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, estimating the difference between the centers by expressing it as a multiple of a measure of variability. <i>For example, the mean height of players on the basketball team is 10 cm greater than the mean height of players on the soccer team, approximately twice the variability (mean absolute deviation) on either team; on a dot plot, the separation between the two distributions of heights is noticeable.</i>	
Concepts and Skills to Master	
<ul style="list-style-type: none"> Use visual representations to compare and contrast numerical data from two populations using measures of variability and center. 	
Related Standards: Current Course	Related Standards: Future Courses
7.SP.1 , 7.SP.3 , 7.SP.4	I.S.ID.1 , I.S.ID.2 , III.S.ID.4 , III.S.IC.6 , AP Statistics

Support for Teachers

Critical Background Knowledge
<ul style="list-style-type: none"> Summarize and describe data distribution in terms of their center (median, mean) and spread (interquartile range, mean absolute deviation) (6.SP.1-5)
Academic Vocabulary
Variation, mean, median, interquartile range, mean absolute deviation
Resources
Curriculum Resources : http://www.uen.org/core/core.do?courseNum=5170#71330

Draw informal comparative inferences about two populations (7.SP.3-4)	
Standard 7.SP.4: Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. <i>For example, decide whether the words in a chapter of a seventh grade science book are generally longer than the words in a chapter of a fourth grade science book.</i>	
Concepts and Skills to Master	
<ul style="list-style-type: none"> Make informal comparative inferences from random samples about two populations using measures of center and variability. 	
Related Standards: Current Course	Related Standards: Future Courses
7.SP.1 , 7.SP.3 , 7.SP.4	I.S.ID.1 , I.S.ID.2 , III.S.ID.4 , III.S.IC.6 , AP Statistics

Support for Teachers

Critical Background Knowledge
<ul style="list-style-type: none"> Summarize and describe data distribution in terms of their center (median, mean) and spread (interquartile range, mean absolute deviation) (6.SP.1-5) Draw inferences about a single population through random sampling (7.SP.1-2) Compare distributions of two samples (7.SP.3)
Academic Vocabulary
Inference, variability, mean, median, interquartile range, mean absolute deviation
Resources
Curriculum Resources : http://www.uen.org/core/core.do?courseNum=5170#71330

Investigate chance processes and develop, use, and evaluate probability models (7.SP.5-8)	
Standard 7.SP.5: Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around $\frac{1}{2}$ indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.	
Concepts and Skills to Master	
<ul style="list-style-type: none"> • Represent the probability of an event as a fraction or decimal from 0 to 1 or percent from 0% to 100%. • Understand that the closer the probability of an event is to 1, the greater the likelihood. 	
Related Standards: Current Course	Related Standards: Future Courses
7.RP.2a , 7.NS.2d , 7.SP.1 , 7.SP.6 , 7.SP.7 , 7.SP.8	8.SP.4 , II.S.ID.5 , II.S.CP.1 , II.S.CP.4 , II.S.CP.6 , III.S.ID.4 , III.S.IC.4 , III.S.IC.6 , AP Statistics

Support for Teachers

Critical Background Knowledge
<ul style="list-style-type: none"> • Compare fractions (4.NF.1 – 2) • Solve percent problems (6.RP.3) • Convert fractions to decimals (7.NS.2)
Academic Vocabulary
Probability, event, chance event, likelihood, outcome
Resources
Curriculum Resources: http://www.uen.org/core/core.do?courseNum=5170#71330

Investigate chance processes and develop, use, and evaluate probability models (7.SP.5-8)	
Standard 7.SP.6: Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability. <i>For example, when rolling a number cube 600 times, predict that a 3 or 6 would be rolled roughly 200 times, but probably not exactly 200 times.</i>	
Concepts and Skills to Master	
<ul style="list-style-type: none"> • Perform an experiment and collect data on a chance event. • Use the long-run relative frequency of an experiment to approximate the probability of the event. • Given the probability of an event, estimate the long-run relative frequency of the event. 	
Related Standards: Current Course	Related Standards: Future Courses
7.RP.1 , 7.RP.2 , 7.NS.2d , 7.SP.5 , 7.SP.7 , 7.SP.8	8.SP.4 , II.S.ID.5 , II.S.CP.1 , II.S.CP.4 , II.S.CP.6 , III.S.ID.4 , III.S.IC.4 , III.S.IC.6 , AP Statistics

Support for Teachers

Critical Background Knowledge
<ul style="list-style-type: none"> • Summarize numerical data sets by reporting the number of observations. (6.SP.5) • Understand the probability of a chance event as a number between 0 and 1 that expresses likelihood. (7.SP.5)
Academic Vocabulary
Probability, event, chance event, likelihood, outcome
Resources
Curriculum Resources : http://www.uen.org/core/core.do?courseNum=5170#71330

Investigate chance processes and develop, use, and evaluate probability models (7.SP.5-8)	
<p>Standard 7.SP.7: Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy.</p> <p>a. Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. For example, if a student is selected at random from a class, find the probability that Jane will be selected and the probability that a girl will be selected.</p> <p>b. Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process. <i>For example, find the approximate probability that a spinning penny will land heads up or that a tossed paper cup will land open-end down. Do the outcomes for the spinning penny appear to be equally likely based on the observed frequencies?</i></p>	
Concepts and Skills to Master	
<ul style="list-style-type: none"> • Develop a probability model (e.g. organized list or table showing the potential outcomes of an experiment or random process with their corresponding probabilities) in which all outcomes are equally likely (uniform). • Use observed frequencies to create a probability model for the data generated from a chance process. • Use probability models to find probabilities of events. • Compare probability models. • Find the probability of a (simple) event as a fraction, decimal, or percent. 	
Related Standards: Current Course	Related Standards: Future Courses
7.RP.1 , 7.RP.2 , 7.NS.2d , 7.SP.5 , 7.SP.6 , 7.SP.8	8.SP.4 , II.S.ID.5 , II.S.CP.1 , II.S.CP.4 , II.S.CP.6 , III.S.ID.4 , III.S.IC.1 , III.S.IC.4 , III.S.IC.6 , AP Statistics

Support for Teachers

Critical Background Knowledge
<ul style="list-style-type: none"> • Evaluate the probability of a chance event (7.SP.5 - 6)
Academic Vocabulary
Probability model, uniform probability, discrepancy, sample space, event
Resources
Curriculum Resources : http://www.uen.org/core/core.do?courseNum=5170#71330

Investigate chance processes and develop, use, and evaluate probability models (7.SP.5-8)	
<p>Standard 7.SP.8: Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation..</p> <ul style="list-style-type: none"> c. Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs. d. Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., “rolling double sixes”), identify the outcomes in the sample space which compose the event. e. Design and use a simulation to generate frequencies for compound events. <i>For example, use random digits as a simulation tool to approximate the answer to the question: If 40% of donors have type A blood, what is the probability that it will take at least 4 donors to find one with type A blood?</i> 	
Concepts and Skills to Master	
<ul style="list-style-type: none"> • Find the sample space of a compound event. • Use organized lists, tables, tree diagrams, and simulations to find the probability of a compound event. • Design and use a simulation (using a random number table, calculator, dice, cards, or other manipulatives) to generate frequencies of compound events. • Represent the probability of a compound event as a fraction, decimal, or percent. 	
Related Standards: Current Course	Related Standards: Future Courses
7.RP.1 , 7.RP.2 , 7.RP.3 , 7.NS.2d , 7.EE.3 , 7.SP.5 , 7.SP.6 , 7.SP.7	8.SP.4 , II.S.ID.5 , II.S.CP.1 , II.S.CP.4 , II.S.CP.6 , III.S.IC.4 , III.S.IC.6 , AP Statistics

Support for Teachers

Critical Background Knowledge
<ul style="list-style-type: none"> • Compute the probability of a simple event (7.SP.7) • Use lists and tables to organize data (7.SP.7) • Use proportional relationships to solve multi-step percent problems (7.RP.3)
Academic Vocabulary
Simple event, compound events, tree diagram, simulation, sample space
Resources
Curriculum Resources : http://www.uen.org/core/core.do?courseNum=5170#71330