

Unit	Standards	Lessons	Textbook Correlation
10	<p>CCSS.MATH.CONTENT.HSS.IC.A.1 Understand statistics as a process for making inferences about population parameters based on a random sample from that population.</p> <p>CCSS.MATH.CONTENT.HSS.IC.A.2 Decide if a specified model is consistent with results from a given data-generating process, e.g., using simulation. <i>For example, a model says a spinning coin falls heads up with probability 0.5. Would a result of 5 tails in a row cause you to question the model?</i></p> <p>CCSS.MATH.CONTENT.HSS.IC.B.3 Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.</p> <p>CCSS.MATH.CONTENT.HSS.IC.B.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.</p> <p>CCSS.MATH.CONTENT.HSS.IC.B.5 Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant.</p> <p>CCSS.MATH.CONTENT.HSS.IC.B.6 Evaluate reports based on data.</p> <p>CCSS.MATH.CONTENT.HSS.ID.A.4 Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate. Use calculators, spreadsheets, and tables to estimate areas under the normal curve.</p> <p>CCSS.MATH.CONTENT.HSS.MD.B.6 (+) Use probabilities to make fair decisions (e.g., drawing by lots, using a random number generator).</p> <p>CCSS.MATH.CONTENT.HSS.MD.B.7 (+) Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game).</p>	15 days	Pearson 11-6, 11-7, 11-8, 11-9, 11-10

<p>CCSS.MATH.CONTENT.HSS.CP.A.2 (optional) Understand that two events A and B are independent if the probability of A and B occurring together is the product of their probabilities, and use this characterization to determine if they are independent.</p> <p>CCSS.MATH.CONTENT.HSS.CP.A.3 (optional) Understand the conditional probability of A given B as $P(A \text{ and } B)/P(B)$, and interpret independence of A and B as saying that the conditional probability of A given B is the same as the probability of A, and the conditional probability of B given A is the same as the probability of B.</p> <p>CCSS.MATH.CONTENT.HSS.CP.A.4 (optional) Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two-way table as a sample space to decide if events are independent and to approximate conditional probabilities. <i>For example, collect data from a random sample of students in your school on their favorite subject among math, science, and English. Estimate the probability that a randomly selected student from your school will favor science given that the student is in tenth grade. Do the same for other subjects and compare the results.</i></p> <p>CCSS.MATH.CONTENT.HSS.CP.A.5 (optional) Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations. <i>For example, compare the chance of having lung cancer if you are a smoker with the chance of being a smoker if you have lung cancer.</i></p> <p>CCSS.MATH.CONTENT.HSS.CP.B.6 (optional) Find the conditional probability of A given B as the fraction of B's outcomes that also belong to A, and interpret the answer in terms of the model.</p> <p>CCSS.MATH.CONTENT.HSS.CP.B.7 (optional) Apply the Addition Rule, $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$, and interpret the answer in terms of the model.</p> <p>CCSS.MATH.CONTENT.HSS.CP.B.8 (optional) (+) Apply the general Multiplication Rule in a uniform probability model, $P(A \text{ and } B) = P(A)P(B A) = P(B)P(A B)$, and interpret the answer in terms of the model.</p>		
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	CCSS.MATH.CONTENT.HSS.CP.B.9 (optional) (+) Use permutations and combinations to compute probabilities of compound events and solve problems.		
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11	<p>CCSS.MATH.CONTENT.HSF.IF.B.4 For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. <i>Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.*</i></p> <p>CCSS.MATH.CONTENT.HSF.C.7.E Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.</p> <p>CCSS.MATH.CONTENT.HSF.TF.A.1 Understand radian measure of an angle as the length of the arc on the unit circle subtended by the angle.</p> <p>CCSS.MATH.CONTENT.HSF.TF.A.2 Explain how the unit circle in the coordinate plane enables the extension of trigonometric functions to all real numbers, interpreted as radian measures of angles traversed counterclockwise around the unit circle.</p> <p>CCSS.MATH.CONTENT.HSF.TF.B.5 Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline.*</p>	20 days	Pearson 13-2, 13-3, 13-4, 13-5, 13-6
12	<p>CCSS.MATH.CONTENT.HSF.TF.C.8 Prove the Pythagorean identity $\sin^2(\theta) + \cos^2(\theta) = 1$ and use it to find $\sin(\theta)$, $\cos(\theta)$, or $\tan(\theta)$ given $\sin(\theta)$, $\cos(\theta)$, or $\tan(\theta)$ and the quadrant of the angle.</p> <p>CCSS.MATH.CONTENT.HSF.TF.C.9 (optional) (+) Prove the addition and subtraction formulas for sine, cosine, and tangent and use them to solve problems.</p> <p>CCSS.MATH.CONTENT.HSG.SRT.C.6 (optional) Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.</p> <p>CCSS.MATH.CONTENT.HSG.SRT.C.8 (optional) Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.*</p>	10 days	Pearson 14-1, 14-2, 14-3, 14-4, 14-5
Units:			

10. Probability and Statistics
11. Periodic Functions and Trigonometry
12. Trigonometric Identities and Equations

Mathematical Practices**Mathematical Practices**

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

I Can Statements:

- I can find permutations and combinations of data sets using formulas.
- I can use simulation to model experimental probability.
- I can find the theoretical probability of events using a formula.
- I can find and analyze the measures of central tendency of given data sets.
- I can find the standard deviation of given data sets.
- I can identify and explore periodic behavior.
- I can graph periodic functions.
- I can write the formulas of trigonometric functions.
- I can find amplitude, period, minimums, and maximums of trigonometric functions.
- I can find the value of the reciprocal trigonometric functions based on the corresponding trigonometric functions.
- I can show that trigonometric identities are true for all values of the variable within the domain of validity.
- I can restrict the domains of trigonometric functions to make their inverses functions.
- I can restrict the domain of the trigonometric functions so that the function values are equivalent to the trigonometric ratios for a right triangle.