Integrating EbD™, The Common Core Standards, and The Standards for Technological Literacy

HIGH SCHOOL

KEY

4 = Benchmark must be covered in detail, lessons and assessments cover this content
3 = Benchmark is covered, but topics and lessons do not center on them
2 = Topics and lessons refer to previous knowledge and integrate content covered
1 = Topics and lessons refer to previous knowledge

		STL	Foundations of Technology	Technology & Society	Technological Design	Advanced Design Applications	Advanced Technological Applications	Engineering Design
English Language Arts Standards » Science & Technical Subjects								
RST 9-10	**Science & Technical Subjects » Grades 9-10**							
	Key Ideas and Details							
1	Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.	11.M		4				
2	Determine the central ideas or conclusions of a text; trace the text's explanation or depiction of a complex process, phenomenon, or concept; provide an accurate summary of the text.	11.R	4		3	3	3	3
3	Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text.	9.I	4	3	3	4	3	3
	Craft and Structure							
4	Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to *grades 9–10 texts and topics*.	9.I	4	3	3	4	3	3
5	Analyze the structure of the relationships among concepts in a text, including relationships among key terms (e.g., *force, friction, reaction force, energy*).	9.I	4	3	3	4	3	3
6	Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, defining the question the author seeks to address	11.M		4				
	Integration of Knowledge and Ideas							
7	Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.	11.R	4		3	3	3	3
8	Assess the extent to which the reasoning and evidence in a text support the author's claim or a recommendation for solving a scientific or technical problem.	11.R	4		3	3	3	3
9	Compare and contrast findings presented in a text to those from other sources (including their own experiments), noting when the findings support or contradict previous explanations or accounts	11.N	4		3	4	3	3
	Range of Reading and Level of Text Complexity							
10	By the end of grade 10, read and comprehend science/technical texts in the grades 9–10 text complexity band independently and proficiently							
RST 11-12	**Science & Technical Subjects » Grades 11-12**							
	Key Ideas and Details							
1	Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account.	11.M		4				
2	Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.	11.R	4		3	3	3	3
3	RST.11-12.3. Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.	9.I	4	3	3	4	3	3
	Craft and Structure							
4	Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to *grades 11–12 texts and topics*.	9.I	4	3	3	4	3	3
5	Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas.	9.I	4	3	3	4	3	3
6	Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, identifying important issues that remain unresolved.	11.M		4				
	Integration of Knowledge and Ideas							
7	Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.	11.R	4		3	3	3	3
8	Evaluate the hypotheses, data, analysis, and conclusions in a science or technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information.	11.R	4		3	3	3	3
9	Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.	11.N	3		3	4	3	3
	Range of Reading and Level of Text Complexity							
10	By the end of grade 12, read and comprehend science/technical texts in the grades 11–12 text complexity band independently and proficiently	11.R	4		3	3	3	3
English Language Arts Standards » Writing								
WHST 9-10	**Writing » Grades 9-10**							
	Text Types and Purposes							
1	Write arguments focused on discipline-specific content. Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among the claim(s), counterclaims, reasons, and evidence. Develop claim(s) and counterclaims fairly, supplying data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form and in a manner that anticipates the audience's knowledge level and concerns. Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. Provide a concluding statement or section that follows from or supports the argument presented.	11.R	4		3	3	3	3
2	Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension. Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic. Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among ideas and concepts. Use precise language and domain-specific vocabulary to manage the complexity of the topic and convey a style appropriate to the discipline and context as well as to the expertise of likely readers. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).	11.R	4		3	3	3	3
	Production and Distribution of Writing							
4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.	11.M, 11.N, 11.R	4	4	3	4	3	3

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		STL	Foundations of Technology	Technology & Society	Technological Design	Advanced Design Applications	Advanced Technological Applications	Engineering Design
5	Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.	11.P	3		3	3	4	4
6	Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.	17.N	1	4			4	
	Research to Build and Present Knowledge							
7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.	10.I, 10.J, 13.J, 13.K	4	4	3	4	4	3
8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.	17.N, 13.J, 13.K	4	4		3	4	1
9	Draw evidence from informational texts to support analysis, reflection, and research.	10.I, 13.K	4	4	3	3	3	3
	Draw evidence from informational texts to support analysis, reflection, and research							
9	Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.	12.L	4	2		3	3	
WHST 11-12	**Writing » Grades 11-12**							
	Text Types and Purposes							
1	Write arguments focused on discipline-specific content. Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences the claim(s), counterclaims, reasons, and evidence. Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form that anticipates the audience's knowledge level, concerns, values, and possible biases. Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. Provide a concluding statement or section that follows from or supports the argument presented.	11.R	4		3	3	3	3
2	technical processes. Introduce a topic and organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension. Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic. Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts. Use precise language, domain-specific vocabulary and techniques such as metaphor, simile, and analogy to manage the complexity of the topic; convey a knowledgeable stance in a style that responds to the discipline and context as well as to the expertise of likely readers. Provide a concluding statement or section that follows from and supports the information or explanation provided (e.g., articulating implications or the significance of the topic).	11.R	4		3	3	3	3
	Production and Distribution of Writing							
3	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.	11.M, 11.N, 11.R	4	4	3	4	3	3
4	Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.	11.P	3		3	3	4	4
5	Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information	17.N	1	4			4	
	Research to Build and Present Knowledge							
7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.	10.I, 10.J, 13.J, 13K	4	4	3	4	4	3
8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.	17.N, 13.J, 13.K	4	4		3	4	1
9	Draw evidence from informational texts to support analysis, reflection, and research.	10.I, 13.K	4	4	3	3	3	3
	Range of Writing							
10	Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.	12.L	4	2		3	3	

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		Foundations of Technology	Technology and Society	Technological Design	Advanced Design Applications	Advanced Technological Applications	Engineering Design
High School: Number & Quantity							
N-RN	**The Real Number System**						
	Extend the properties of exponent						
2.	Rewrite expressions involving radicals and rational exponents using the properties of exponents.	3					
N-Q	**Quantities**						
	Reason quantitatively and use units to solve problems.						
1.	Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.	4		2	2	2	4
2.	Define appropriate quantities for the purpose of descriptive modeling	4		3	2	2	3
3.	Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.	3			3	3	
N-VM	**Vector & Matrix Quantities**						
	Represent and model with vector quantities.						
1	(+) Recognize vector quantities as having both magnitude and direction. Represent vector quantities by directed line segments, and use appropriate symbols for vectors and their magnitudes (e.g., v, |v|, ||v||, v).	4		3	4		
2	(+) Find the components of a vector by subtracting the coordinates of an initial point from the coordinates of a terminal point.				3		
3	(+) Solve problems involving velocity and other quantities that can be represented by vectors.	4		4	4		
	Perform operations on vectors.						
	Perform operations on matrices and use matrices in applications.						
6	(+) Use matrices to represent and manipulate data, e.g., to represent payoffs or incidence relationships in a network.	3		4		2	
7	(+) Multiply matrices by scalars to produce new matrices, e.g., as when all of the payoffs in a game are doubled.						
8	(+) Add, subtract, and multiply matrices of appropriate dimensions.					3	
High School: Algebra							
A-SSE	**Seeing Structure in Expressions**						
	Interpret the structure of expressions.						
1	Interpret expressions that represent a quantity in terms of its context. Interpret parts of an expression, such as terms, factors, and coefficients. Interpret complicated expressions by viewing one or more of their parts as a single entity. For example, interpret P(1+r)n as the product of P and a factor not depending on P.	3					
2	Use the structure of an expression to identify ways to rewrite it. For example, see x4 – y4 as (x2)2 – (y2)2, thus recognizing it as a difference of squares that can be factored as (x2 – y2)(x2 + y2).	3					
	Write expressions in equivalent forms to solve problems						
4	Derive the formula for the sum of a finite geometric series (when the common ratio is not 1), and use the formula to solve problems. For example, calculate mortgage payments.★	3		2			3
A-APR	**Arithmetic with Polynomials & Rational Expressions**						
	Perform arithmetic operations on polynomials						
1	Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.	2				3	
	Use polynomial identities to solve problems						
4	Prove polynomial identities and use them to describe numerical relationships. For example, the polynomial identity (x2 + y2)2 = (x2 – y2)2 + (2xy)2 can be used to generate Pythagorean triples.	4		3	2		
5	(+) Know and apply the Binomial Theorem for the expansion of (x + y)n in powers of x and y for a positive integer n, where x and y are any numbers, with coefficients determined for example by Pascal's Triangle.1	2		2			
A-CED	**Creating Equations**						
	Create equations that describe numbers or relationships						
1	Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions.	4		2	2	2	
2	Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.	3		4	2	2	
3	Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context. For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.	3		4			
4	Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. For example, rearrange Ohm's law V = IR to highlight resistance R.	4		2	4	2	
A-REI	**Reasoning with Equations & Inequalities**						
	Understand solving equations as a process of reasoning and explain the reasoning.						
1	Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.	3		4	2	2	
2	Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.	4		3	2	2	
	Solve equations and inequalities in one variable.						
3	Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.	4		3	2	2	
	Solve systems of equations						
6	Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.			4			
7	Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. For example, find the points of intersection between the line y = –3x and the circle x2 + y2 = 3.	3		2			
8	(+) Represent a system of linear equations as a single matrix equation in a vector variable.			4			
	Represent and solve equations and inequalities graphically						
10	Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).	4		4	2	2	
11	Explain why the x-coordinates of the points where the graphs of the equations y = f(x) and y = g(x) intersect are the solutions of the equation f(x) = g(x); find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where f(x) and/or g(x) are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.★	2					
High School: Geometry							

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		Foundations of Technology	Technology and Society	Technological Design	Advanced Design Applications	Advanced Technological Applications	Engineering Design
G-CO	**Congruence**						
	Experiment with transformations in the plane						
1.	Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc. a ratio relationship between two quantities. For example, "The ratio of wings to beaks in the bird house at the zoo was 2:1, because for	4		2	2	2	
2.	Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch) with b ≠ 0, and use rate language in the context of a ratio relationship.				4		
3.	Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.						
4.	Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.	2		2			
5.	Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.			3			
	Understand congruence in terms of rigid motions						
8.	Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions.			3			
	Prove geometric theorems						
9.	Prove theorems about lines and angles. *Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints.*			3			
10.	Prove theorems about triangles. *Theorems include: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.*	2		3			
11.	Prove theorems about parallelograms. *Theorems include: opposite sides are congruent, opposite angles are congruent, the diagonals of a parallelogram bisect each other, and conversely, rectangles are parallelograms with congruent diagonals.*	2		3			
	Make geometric constructions						
12.	Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). *Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.*	3		4	4	4	
13.	Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle.	2		2	2	2	
G-SRT	**Similarity, Right Triangles, & Trigonometry**						
	Prove theorems involving similarity						
4.	Prove theorems about triangles. Theorems include: a line parallel to one side of a triangle divides the other two proportionally, and conversely; the Pythagorean Theorem proved using triangle similarity.	4		4			4
	Define trigonometric ratios and solve problems involving right triangles						
6.	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.			3			
7.	Explain and use the relationship between the sine and cosine of complementary angles.			4			
8.	Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.★			4			
	Apply trigonometry to general triangles						
9.	(+) Derive the formula A = 1/2 ab sin(C) for the area of a triangle by drawing an auxiliary line from a vertex perpendicular to the opposite side.			3			
10.	(+) Prove the Laws of Sines and Cosines and use them to solve problems.			3			
11.	(+) Understand and apply the Law of Sines and the Law of Cosines to find unknown measurements in right and non-right triangles (e.g., surveying problems, resultant forces).			3			
G-C	**Circles**						
	Understand and apply theorems about circles						
1.	Prove that all circles are similar.	2		2			
2.	Identify and describe relationships among inscribed angles, radii, and chords. Include the relationship between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle.	2		2			
3.	Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle.	2		2			
4.	(+) Construct a tangent line from a point outside a given circle to the circle.	2		2			
	Find arc lengths and areas of sectors of circles						
6.	Derive using similarity the fact that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure of the angle as the constant of proportionality; derive the formula for the area of a sector.	2		2			
G-GPE	**Expressing Geometric Properties with Equations**						
	Translate between the geometric description and the equation for a conic section						
1.	Derive the equation of a circle of given center and radius using the Pythagorean Theorem; complete the square to find the center and radius of a circle given by an equation.			2			
	Use coordinates to prove simple geometric theorems algebraically						
7.	Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.★			2			
G-GMD	**Geometric Measurement & Dimension**						
	Explain volume formulas and use them to solve problems						
1.	Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone. Use dissection arguments, Cavalieri's principle, and informal limit arguments.			2			
2.	(+) Give an informal argument using Cavalieri's principle for the formulas for the volume of a sphere and other solid figures.					3	
3.	Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.★	3		4		4	
	Visualize relationships between two-dimensional and three-dimensional objects						

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4.	Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.	4					3
G-MG	**Modeling with Geometry**						
	Apply geometric concepts in modeling situations						
1.	Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).★	4		4	4	4	4
2.	Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).★	3		4	4	4	4
3.	Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).★	4		4	4	4	4
High school: Functions							
F-BF	**Building Functions**						
	Build a function that models a relationship between two quantities						
1	Write a function that describes a relationship between two quantities.★ Determine an explicit expression, a recursive process, or steps for calculation from a context. Combine standard function types using arithmetic operations. For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model. (+) Compose functions. For example, if T(y) is the temperature in the atmosphere as a function of height, and h(t) is the height of a weather balloon as a function of time, then T(h(t)) is the temperature at the location of the weather balloon as a function of time			3			4
2	Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.			3			4
	Build new functions from existing functions.						
5	(+) Understand the inverse relationship between exponents and logarithms and use this relationship to solve problems involving logarithms and exponents.					3	
F-LE	**Linear, Quadratic, & Exponential Models**						
	Construct and compare linear, quadratic, and exponential models and solve problems.						
1	Distinguish between situations that can be modeled with linear functions and with exponential functions. Prove that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals. Recognize situations in which one quantity changes at a constant rate per unit interval relative to another. Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.			3			4
2	Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).						3
3	Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function.						3
4	For exponential models, express as a logarithm the solution to $ab^{ct} = d$ where a, c, and d are numbers and the base b is 2, 10, or e; evaluate the logarithm using technology.						3
	Interpret expressions for functions in terms of the situation they model.						
5	Interpret the parameters in a linear or exponential function in terms of a context			3			4
F-TF	**Trigonometric Functions**						
	Extend the domain of trigonometric functions using the unit circle.						
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						3
	Model periodic phenomena with trigonometric functions.						
5	Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline.★			3			3
6	Understand that restricting a trigonometric function to a domain on which it is always increasing or always decreasing allows its inverse to be constructed.				3		
7	Use inverse functions to solve trigonometric equations that arise in modeling contexts; evaluate the solutions using technology, and interpret them in terms of the context.★						3
	Prove and apply trigonometric identities.						
9	Prove the addition and subtraction formulas for sine, cosine, and tangent and use them to solve problems			3	4		
High school: Statistics and Probability							
S_ID	**Interpreting Categorical & Quantitative Data**						
	Summarize, represent, and interpret data on a single count or measurement variable						
1	Represent data with plots on the real number line (dot plots, histograms, and box plots).		4	4			4
2	Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.	3	4	4			4
3	Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).	3	3	3			
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.		3				
	Interpret linear models						
7	Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data		2				
8	Compute (using technology) and interpret the correlation coefficient of a linear fit.		3				
9	Distinguish between correlation and causation		3				
S-IC	**Making Inferences & Justifying Conclusions**						
	Understand and evaluate random processes underlying statistical experiments						
1	Understand statistics as a process for making inferences about population parameters based on a random sample from that population.		4				
2	Decide if a specified model is consistent with results from a given data-generating process, e.g., using simulation. 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?		3	3			

Integrating EbD™, The Common Core Standards, and The Standards for Technological Literacy

HIGH SCHOOL

KEY

4 = Benchmark must be covered in detail, lessons and assessments cover this content
3 = Benchmark is covered, but topics and lessons do not center on them
2 = Topics and lessons refer to previous knowledge and integrate content covered
1 = Topics and lessons refer to previous knowledge

		Foundations of Technology	Technology and Society	Technological Design	Advanced Design Applications	Advanced Technological Applications	Engineering Design
	Make inferences and justify conclusions from sample surveys, experiments, and observational studies						
3	Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.	2	3				
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.		2				
5	Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant.		2				
6	Evaluate reports based on data.		3				
S-CP	**Conditional Probability & the Rules of Probability**						
	Understand independence and conditional probability and use them to interpret data						
3.	Understand the conditional probability of A given B as P(A 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.						3
5.	Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations. 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.		3				
	Use the rules of probability to compute probabilities of compound events in a uniform probability model						
8.	(+) Apply the general Multiplication Rule in a uniform probability model, P(A and B) = P(A)P(B|A) = P(B)P(A|B), and interpret the answer in terms of the model.			3			
9.	(+) Use permutations and combinations to compute probabilities of compound events and solve problems.			3			
S-MD	**Using Probability to Make Decisions**						
	Use probability to evaluate outcomes of decisions						
5,	(+) Weigh the possible outcomes of a decision by assigning probabilities to payoff values and finding expected values. Find the expected payoff for a game of chance. For example, find the expected winnings from a state lottery ticket or a game at a fast-food restaurant. Evaluate and compare strategies on the basis of expected values. For example, compare a high-deductible versus a low-deductible automobile insurance policy using various, but reasonable, chances of having a minor or a major accident.			3	3	3	4
6.	(+) Use probabilities to make fair decisions (e.g., drawing by lots, using a random number generator).			3	3	3	4
7.	(+) Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game).			3	3	3	4