Module Correlation Chart

TEKS

§ . . Eighth Grade Mathematics

(A) General requirements. This comprehensive course is recommended for students in 8th Grade.

(B) Introduction.

(1) Within a well-balanced mathematics curriculum, the primary focal points at Grade 8 are using basic principles of algebra to analyze and represent proportional and non-proportional relationships and using probability to describe data and make predictions.

(2) Throughout mathematics in Grades 6-8, students build a foundation of basic understandings in number, operation, and quantitative reasoning; patterns, relationships, and algebraic thinking; geometry and spatial reasoning; measurement; and probability and statistics. Students use concepts, algorithms, and properties of rational numbers to explore mathematical relationships and to describe increasingly complex situations. Students use algebraic thinking to describe how a change in one quantity in a relationship results in a change in the other; and they connect verbal, numeric, graphic, and symbolic representations of relationships. Students use geometric properties and relationships, as well as spatial reasoning, to model and analyze situations and solve problems. Students communicate information about objects or situations by quantifying attributes, generalize procedures from measurement experiences, and use the procedures to solve problems. Students use appropriate statistics, representations of data, reasoning, and concepts of probability to draw conclusions, evaluate arguments, and make recommendations.

(3) Problem solving, language and communication, connections within and outside mathematics, and formal and informal reasoning underlie all content areas in mathematics. Throughout mathematics in Grades 6-8, students use these processes together with technology (at least four-function calculators for whole numbers, decimals, and fractions) and other mathematical tools such as manipulative materials to develop conceptual understanding and solve problems as they do mathematics.

(C) Knowledge and skills.

Texas Essential Knowledge and Skills			Modules
(1)	**Number, operation, and quantitative reasoning. The student understands that different forms of numbers are appropriate for different situations.**		
	(A)	compare and order rational numbers in various forms including integers, percents, and positive and negative fractions and decimals; and	1-3, 7
	(B)	select and use appropriate forms of rational numbers to solve real-life problems including those involving proportional relationships; and	2-3, 7
	(C)	approximate (mentally and with calculators) the value of irrational numbers as they arise from problem situations; and	2
	(D)	express numbers in scientific notation, including negative exponents, in appropriate problem situations.	2
(2)	**Number, operation, and quantitative reasoning. The student selects and uses appropriate operations to solve problems and justify solutions.**		
	(A)	select and use appropriate operations to solve problems and justify the selections; and	1-,4, 7
	(B)	add, subtract, multiply, and divide rational numbers in problem situations; and	1-4, 7
	(C)	evaluate a solution for reasonableness; and	1-8
	(D)	use multiplication by a constant factor (unit rate) to represent proportional relationships; for example, the arm span of a gibbon is about 1.4 times its heights, a = 1.4h.	3
(3)	**Patterns, relationships, and algebraic thinking. The student identifies proportional relationships in problem situations and solves problems.**		
	(A)	compare and contrast proportional and non-proportional relationships; and	3, 7
	(B)	estimate and find solutions to application problems involving percents and proportional relationships such as similarity and rates.	3, 7
(4)	**Patterns, relationships, and algebraic thinking. The student makes connections among various representations of a numerical relationship.**		
	(A)	The student is expected to generate a different representation given one representation of data such as a table, graph, equation, or verbal description.	4, 7-8
(5)	**Patterns, relationships, and algebraic thinking. The student uses graphs, tables, and algebraic representations to make predictions and solve problems. The student is expected to:**		
	(A)	estimate, find, and justify solutions to application problems using appropriate tables, graphs, and algebraic equations; and	2, 4, 7-8
	(B)	use an algebraic expression to find any term in a sequence.	4

(6)	**Geometry and spatial reasoning. The student uses transformational geometry to develop spatial sense.**		
	(A)	generate similar shapes using dilations including enlargements and reductions; and	6
	(B)	graph dilations, reflections, and translations on a coordinate plane.	6
(7)	**Geometry and spatial reasoning. The student uses geometry to model and describe the physical world.**		
	(A)	draw solids from different perspectives; and	5, 6
	(B)	use geometric concepts and properties to solve problems in fields such as art and architecture;	5, 6
	(C)	use pictures or models to demonstrate the Pythagorean Theorem; and	6
	(D)	locate and name points on a coordinate plane using ordered pairs of rational numbers.	2
(8)	**Measurement. The student uses procedures to determine measures of solids.**		
	(A)	find surface area of prisms and cylinders using concrete models and nets (two-dimensional models);	5
	(B)	connect models to formulas for volume of prisms, cylinders, pyramids, and cones; and	5
	(C)	estimate answers and use formulas to solve application problems involving surface area and volume.	5
(9)	**Measurement. The student describes how changes in dimensions affect linear, area, and volume measures.**		
	(A)	use the Pythagorean Theorem to solve real-life problems; and	6
	(B)	use proportional relationships in similar shapes to find missing measurements.	6
(10)	**Probability and Statistics. The student describes how changes in dimensions affect linear, area, and volume measures.**		
	(A)	describe the resulting effects on perimeter and area when dimensions of a shape are changed proportionally; and	6
	(B)	describe the resulting effect on volume when dimensions of a solid are changed proportionally.	6
(11)	**Probability and statistics. The student applies concepts of theoretical and experimental probability to make predictions.**		
	(A)	find probabilities of compound events (dependent and independent); and	3, 7
	(B)	use theoretical probabilities and experimental results to make predictions and decisions; and	3, 7
	(C)	select and use different models to simulate an event.	3, 7
(12)	**Probability and statistics. The student uses statistical procedures to describe data.**		

	(A)	select the appropriate measure of central tendency to describe a set of data for a particular purpose; and	8
	(B)	draw conclusions and make predictions by analyzing trends in scatter plots; and	8
	(C)	construct circle graphs, bar graphs, and histograms, with and without technology.	8
(13)	**Probability and statistics. The student evaluates predictions and conclusions based on statistical data.**		
	(A)	evaluate methods of sampling to determine validity of an inference made from a set of data; and	8
	(B)	recognize misuses of graphical or numerical information and evaluate predictions and conclusions based on data analysis.	8
(14)	**Underlying processes and mathematical tools. The student applies Grade 8 mathematics to solve problems connected to everyday experiences, investigations in other disciplines, and activities in and outside of school. The student is expected to:**		
	(A)	identify and apply mathematics to everyday experiences, to activities in and outside of school, with other disciplines, and with other mathematical topics; and	1, 2, 3, 4, 7, 8
	(B)	use a problem-solving model that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness; and	4, 7
	(C)	select or develop an appropriate problem-solving strategy from a variety of different types, including drawing a picture, looking for a pattern, systematic guessing and checking, acting it out, making a table, working a simpler problem, or working backwards to solve a problem; and	1, 7, 8
	(D)	select tools such as real objects, manipulatives, paper and pencil, and technology or techniques such as mental math, estimation, and number sense to solve problems.	1-2, 7-8
(15)	**Underlying processes and mathematical tools. Informal communications about Grade 8 mathematics and mathematical language, representations, and models.**		
	(A)	communicate mathematical ideas using language, efficient tools, appropriate units, and graphical, numerical, physical, or algebraic mathematical models; and	1-8
	(B)	evaluate the effectiveness of different representations to communicate ideas.	8
(16)	**Underlying processes and mathematical tools. The student uses logical reasoning to make conjectures and verify conclusions. The student is expected to:**		
	(A)	make conjectures from patterns or sets of examples and non-examples; and	1-8
	(B)	validate his or her conclusions using mathematical properties and relationships.	1-8

Source: The provisions of this §122.14 adopted to be effective September 1, 1998, 22 TexReg 5031.