

**NEW DIRECTIONS
STATE OF DELAWARE
MATHEMATICS CURRICULUM FRAMEWORK
Correlation with MATH *Connections***

**Standard 1
PROBLEM SOLVING**

Students will develop their ability to SOLVE PROBLEMS by engaging in developmentally appropriate problem-solving opportunities in which There is a need to use various approaches to investigate and understand Mathematical concepts; to formulate their own problems; to find solutions To problems from everyday situations; to develop and apply strategies to solve a wide variety of problems; and to integrate mathematical reasoning, communication, and connections.

Every section of every unit contains varied problems which meet the various opportunities for problem solving outlined in this standard. Particular emphasis is given to real-world situations.

**Standard 2
COMMUNICATION**

Students will develop their ability to COMMUNICATE mathematically By solving problems in which there is a need to obtain information from the real world through reading, listening, and observing; to translate this information mathematically; and to present results in written, oral, and visual formats.

Examples of this standard occur in all sections of the book. One example will be found in Book 1-A section 1.1

**Standard 3
MATHEMATICAL REASONING**

Students will develop their ability to REASON MATHEMATICALLY by solving problems in which there is a need to investigate significant mathematical ideas in all content areas; to justify their thinking; to reinforce and extend their logical reasoning abilities; to reflect on and clarify their own thinking; to ask questions to extend their thinking; and to construct their own learning.

The various aspects of reasoning are found throughout the text in all sections. Examples can be found in Book 1-A sections 1.4 and 1.7

Standard 4 MATHEMATICAL CONNECTIONS	
Students will develop their ability to make MATHEMATICAL CONNECTIONS by solving problems in which there is a need to view mathematics as an integrated whole and to integrate mathematics with Other disciplines, while allowing the flexibility to approach problems, from within and outside mathematics, in a variety of ways.	This standard is addressed in most every section of every book. One example with algebra is found in Book 1-A section 2.1.
Standard 5 through Standard 10 will address only performance indicators for grades 9 – 10	
Standard 5 ESTIMATION, MEASUREMENT, and COMPUTATION	
5.90 Compute permutations and combinations.	Book 1-B 8.3 Book 3-A 4.2, 4.3, 4.4
5.91 Compute areas and volumes by partitioning and indirect methods.	Book 2-B 5.2- 5.5
5.92 Compute with real numbers.	Book 2-B 4.4 Book 3-B 7.5 Extension 7.5
5.93 Compute with matrices	Book 2-B 6.4, 6.5
5.94 Extend computation procedures to algebraic procedures.	Book 1-A 2.1, 2.3- 2.5, 3.3, 3.6, 4.3
5.95 Determine if errors are within tolerance limits.	Book 1-A 1.4 Book 3-A 4.3
5.96 Estimate and calculate derived measures.	Book 2-A 2.1, 2.2
5.97 Assess the error resulting from estimation and rounding.	Book 1-A 1.3, 1.4, 1.6
5.98 Estimate algebraic solutions on a graphics calculator.	Book 1-A 1.3, 2.3, 3.4, 3.6 Book 1-B 4.4, 4.5, 5.3, 5.5, 5.6, 6.4
Standard 6 NUMBER SENSE	
6.90 Connect physical, verbal, and symbolic representations of real numbers	Book 1-A 4.4, 4.5 Book 2A 1.8 Book 2B 5.2

6.91 Demonstrate an understanding of ordered relations for real numbers	Book 1A 4.4, 4.5 Book 2A 1.8 Book 2B 1.3 Book 3B 7.5
6.92 Examine the effects of operations on real numbers.	Book 1A 1.6, 2.3, 2.6, 4.1, 4.3- 4.5
6.93 Recognize inverse operations, powers, and roots.	Book 1A 2.5- 2.7 Book 3A 2.2- 2.10
Standard 7 ALGEBRA	
7.90 Model relationships among quantities using symbols and expressions	Book 1A 2.2, 2.3, 2.4
7.91 Develop appropriate symbol sense to use algebraic technology.	Book 1A 2.1, 2.2, 2.3, 3.2
7.92 Use tables and graphs to interpret expressions, equations, and inequalities.	Book 1A 2.2, 3.4- 3.6, 4.2- 4.5 Book 1B 5.5, 5.6, 6.3, 8.4, 8.5 Book 2A 2.5, 2.9, 2.10, 3.6, 4.4- 4.6 Book 2B 5.3, 5.4, 5.7, 5.8, 6.1, 6.4
7.93 Describe relationships between variable quantities, verbally Symbolically, and graphically (including slope as a rate of change)	Book 1A 3.3, 3.4, 3.5, 3.6
7.94 Translate and make connections from narrative to table, graph and	Book 1A 3.3- 3.6, 4.2 Book 1B 5.2, 6.3, 6.4
7.95 Solve linear and quadratic algebra using graphs, tables, equations formulas and matrices.	Book 1A 2.2- 2.5, 3.4- 3.6, 4.2- 4.5 Book 1B 6.3, 6.4 Book 3A 1.1- 1.3
7.96 Solve systems of equations algebraically graphically and with matrices.	Book 1B 5.3, 5.7 Book 2B 6.4
7.97 Solve inequalities graphically and symbolically.	Book 1A 3.2 Book 2B 6.2 EXT.6
7.98 Explore algebraic relationships using technology.	Book 1A 2.2, 3.4, 4.2- 4.5 Book 1B 6.5 Book 2B 5.2, 6.1, 6.2
Standard 8 SPATIAL SENSE AND GEOMETRY	
8.90 Explore, draw, and construct	Book 2B 5.1, 5.2, 5.3

three dimensional objects	
8.91 Construct geometric figures on a coordinate plane.	Book 2A 1.3, 1.7, 2.1, 2.2, 2.5 Book 2B 4.2, 5.5
8.92 Identify congruent and similar figures using transformational, Euclidian, and coordinate geometries.	Book 2A 2.1, 2.2, 2.6- 2.9
8.93 Deduce properties of figures using coordinate and Euclidean	Book 2A Chapters 1 and 2 Book 2B Chapters 4 and 5
8.94 Explore geometric patterns and generalize results using	Book 2A 1.8, 1.9,2.5, 2.9, 2.10 Book 2B 4.4, 4.6, 5.3, 5.4, 5.6, 5.8
8.95 Apply similarity, congruence and proportionality.	Book 2A 2.2, 2.7, 2.9, 2.10
8.96 Use the properties and relationships in two and three dimensional figures including circles and spheres.	Book 2B Chapter 4 Book 2B 5.2, 5.4, 5.5, 5.8
8.97 Apply right triangle trigonometry and the Pythagorean theorem	Book 2A 1.8, 3.4, 3.5 Book 2B 5.6
Standard 9 STATISTICS AND PROBABILITY	
9.90 Explore and analyze sampling methods and collect data.	Book 1A 1.1- 1.4
9.91 Collect, explore, compare and interpret one and two variable real world data.	Book 1A 1.4 - 1.6, 4.1-4.5
9.92 Use curve fitting to model and draw inferences from real life data.	Book 1A 4.1- 4.5
9.93 Summarize and interpret single-variable data by exploring and choosing measures of central tendency and dispersion.	Book 1A 1.4- 1.6, 4.8
9.94 Analyze the validity of statistical conclusions and the use, misuse, and abuse of data caused by choices of scale, inappropriate choices of central tendency, incorrect curve fitting or inappropriate use of control groups	Book 1A 1.4, 1.5 Book 3A 4.3, 4.7, 4.8, 4.9
9.95 Define a sample space using	Book 1B 7.5

the fundamental counting principle	Book 3A 4.2
9.96 Compare and determine the reasonableness of outcomes.	Book 1A 1.4, 4.5 Book 3A 4.5
9.97 Model mathematical situations, using simulations or experiments,	Book 1B 8.3, 8.4, 8.5 Book 3A 4.5
Standard 10 PATTERNS, RELATIONS AND FUNCTIONS	
10.90 Model real-world phenomena with appropriate functions	Book 1B 6.2 - 6.6
10.91 Search for and describe algebraic, geometric and statistical patterns using mathematical models.	Book 1B 6.4, 6.5, 8.5 Book 2A 1.7-1.9 Book 2B 5.6 - 5.8
10.92 Classify relationships between variable expressions as linear,	Book 1B 6.4, 6.5 Book 2A 1.9
10.93 Use technology to explore transformations of functions caused by parameter changes.	Book 2B 4.3
10.94 Identify and interpret maximum and minimum values of functional relationships graphically.	Book 3A 1.2, 1.3