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**Mathematics: Applications and Concepts,  
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Course 3  
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**correlated to**

**North Carolina  
Mathematics Standard Course of Study  
Grade 8**

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**NORTH CAROLINA  
 MATHEMATICS STANDARD COURSE OF STUDY  
 GRADE 8**

<b>OBJECTIVES</b>	<b>PAGE REFERENCES</b>
<b>COMPETENCY GOAL 1: The learner will understand and compute with real numbers.</b>	
1.01 Develop number sense for the real numbers.	
<ul style="list-style-type: none"> <li>• Define and use irrational numbers.</li> </ul>	SE: 121–122, 125–129, 130, 131, 141, 147, 149, 150, 151  TWE: 121–122, 125–129, 130, 131, 141, 147, 149, 150, 151
<ul style="list-style-type: none"> <li>• Compare and order.</li> </ul>	SE: 18, 20, 21, 27, 32, 55, 57, 67–70, 75, 86, 105, 109, 127, 128, 129, 136, 150, 212, 213, 214, 222, 251  TWE: 18, 20, 21, 27, 32, 55, 57, 67–70, 75, 86, 105, 109, 127, 128, 129, 136, 150, 212, 213, 214, 222, 251
<ul style="list-style-type: none"> <li>• Use estimates of irrational numbers in appropriate situations.</li> </ul>	SE: 120–122, 126, 128, 130, 131, 147, 149  TWE: 120–122, 126, 128, 130, 131, 147, 149
1.02 Develop flexibility in solving problems by selecting strategies and using mental computation, estimation, calculators or computers, and paper and pencil.	This objective is addressed throughout. See, for example:  SE: 6–10, 43–44, 96–97, 123–124, 176–177, 226–227, 276–277, 324–325, 378–379, 418–419, 488–489, 537–538, 588–589  TWE: 6–10, 43–44, 96–97, 123–124, 176–177, 226–227, 276–277, 324–325, 378–379, 418–419, 488–489, 537–538, 588–589

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<b>COMPETENCY GOAL 2: The learner will understand and use measurement concepts.</b>	
2.01 Determine the effect on perimeter, area or volume when one or more dimensions of two- and three-dimension figures are changed.	SE: 180, 194–197, 200, 201, 318, 322, 339, 345, 357  TWE: 180, 194–197, 200, 201, 318, 322, 339, 345, 357
2.02 Apply and use concepts of indirect measurement.	SE: 188–191, 192–193, 200  TWE: 188–191, 192–193, 200
<b>COMPETENCY GOAL 3: The learner will understand and use properties and relationships in geometry.</b>	
3.01 Represent problem situations with geometric models.	SE: 335, 341, 342, 588–589  TWE: 335, 341, 342, 588–589
3.02 Apply geometric properties and relationships, including the Pythagorean theorem, to solve problems.	SE: 132–136, 137–140, 142–145, 147, 148, 149, 258, 260, 275, 277, 284, 286, 288, 295, 308, 309  TWE: 132–136, 137–140, 142–145, 147, 148, 149, 258, 260, 275, 277, 284, 286, 288, 295, 308, 309
3.03 Identify, predict, and describe dilations in the coordinate plane.	SE: 194–197, 200, 201  TWE: 194–197, 200, 201

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<b>COMPETENCY GOAL 4: The learner will understand and use graphs and data analysis.</b>	
4.01 Collect, organize, analyze, and display data (including scatterplots) to solve problems.	SE: 3, 145, 425, 439, 457, 543, 420–424, 425, 426–429, 430–433, 434, 440, 446–449, 450–453, 454–457, 458–460, 461, 537–538, 539–542, 543, 554, 602–603  TWE: 3, 145, 425, 439, 457, 543, 420–424, 425, 426–429, 430–433, 434, 440, 446–449, 450–453, 454–457, 458–460, 461, 537–538, 539–542, 543, 554, 602–603
4.02 Approximate a line of best fit for a given scatterplot; explain the meaning of the line as it relates to the problem and make predictions.	SE: 540, 541, 542  TWE: 540, 541, 542, 543
4.03 Identify misuses of statistical and numerical data.	SE: 450–453, 460, 461  TWE: 450–453, 460, 461
<b>COMPETENCY GOAL 5: The learner will understand and use linear relations and functions.</b>	
5.01 Develop an understanding of function.	
<ul style="list-style-type: none"> <li>• Translate among verbal, tabular, graphic, and algebraic representations of functions.</li> </ul>	SE: 517–520, 521, 522–525, 530, 531, 553, 555, 556, 557, 560–563, 565–568, 569, 573, 578, 583, 593, 595, 596  TWE: 517–520, 521, 522–525, 530, 531, 553, 555, 556, 557, 560–563, 565–568, 569, 573, 578, 583, 593, 595, 596

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<b>OBJECTIVES</b>	<b>PAGE REFERENCES</b>
<ul style="list-style-type: none"> <li>• Identify relations and functions as linear or nonlinear.</li> </ul>	SE: 560–563, 578, 593, 595, 596  TWE: 560–563, 578, 593, 595, 596
<ul style="list-style-type: none"> <li>• Find, identify, and interpret the slope (rate of change) and intercepts of a linear relation.</li> </ul>	SE: 526–529, 530, 533–536, 553, 555, 556  TWE: 526–529, 530, 533–536, 553, 555, 556
<ul style="list-style-type: none"> <li>• Interpret and compare properties of linear functions from tables, graphs, or equations.</li> </ul>	SE: 532  TWE: 532
5.02 Write an equation of a linear relationship given: two points, the slope and one point on the line, or the slope and y-intercept.	SE: 531, 535, 536, 555  TWE: 531, 535, 536, 555
5.03 Solve problems using linear equations and inequalities; justify symbolically and graphically.	SE: 45–49, 50–53, 56, 57, 92–95, 110, 111, 468, 474–477, 481, 482–483, 484–487, 490, 495, 496–498, 500–504, 505, 506, 507, 522–525, 553  TWE: 45–49, 50–53, 56, 57, 92–95, 110, 111, 468, 474–477, 481, 482–483, 484–487, 490, 495, 496–498, 500–504, 505, 506, 507, 522–525, 553

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<b>OBJECTIVES</b>	<b>PAGE REFERENCES</b>
5.04 Solve problems using the inverse relationships of addition and subtraction, multiplication and division, squares and square roots, and cubes and cube roots.	SE: 45–49, 50–53, 56, 57, 92–95, 110, 111, 129, 468, 474–477, 481, 482–483, 484–487, 490, 495, 496–498, 500–504, 505, 506, 507, 522–525, 553  TWE: 45–49, 50–53, 56, 57, 92–95, 110, 111, 129, 468, 474–477, 481, 482–483, 484–487, 490, 495, 496–498, 500–504, 505, 506, 507, 522–525, 553

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