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correlated to

**North Carolina  
Mathematics Standard Course  
of Study and Grade Level  
Competencies  
Grades 5-8**



**YOUR NORTH CAROLINA GREAT SOURCE REPRESENTATIVES**

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 correlated to  
**North Carolina Mathematics Standard Course of Study**  
**and Grade Level Competencies**  
**Grade 5**

**COMPETENCY GOAL 1**

**The learner will understand and compute with non-negative rational numbers.**

Competency Objectives, Grade 5	ACCESS Math
1.01 Develop number sense for rational numbers 0.001 through 999, 999  a) Connect model, number word, and number, using a variety of representations.	<b>Student Book:</b> 17, 18, 21, 26, 28, 29, 31, 33, 38, 40, 43, 52, 54, 60, 61, 62, 66, 67, 70, 71, 72, 76, 77, 104, 105, 106, 109, 110, 115, 124, 125, 129, 131, 141, 143, 146, 148, 151
b) Build an understanding of place value (thousandths through hundred thousands).	<b>Student Book:</b> 17, 60, 61, 62, 65, 66, 70, 71
c) Compare and order rational numbers.	<b>Student Book:</b> 18, 62, 65, 66, 67, 114, 115, 116, 123, 283, 284, 285
d) Make estimates of rational numbers in appropriate situations.	<b>Student Book:</b> 21, 22, 24, 31, 33, 34
1.02 Develop fluency in adding and subtracting non-negative rational numbers (halves, fourths, eighths; thirds, sixths, twelfths; fifths, tenths, hundredths, thousandths; mixed numbers).  a) Develop and analyze strategies for adding and subtracting numbers.	<b>Student Book:</b> 119, 120, 121, 124, 125, 126, 232
b) Estimate sums and differences.	<b>Student Book:</b> 36, 73, 121
c) Judge the reasonableness of solutions.	<b>Student Book:</b> 36, 120, 121, 126
1.03 Develop flexibility in solving problems by selecting strategies and using mental computation, estimation, calculators or computers, and paper and pencil.	<b>Student Book:</b> 21, 22, 23, 24, 31, 32, 33, 62, 133

## COMPETENCY GOAL 2

The learner will recognize and use standard units of metric and customary measurements.

Competency Objectives, Grade 5	ACCESS Math
2.01 Estimate the measure of an object in one system given the measure of that object in another system.	No specific lesson in the Student Book addresses this objective.
2.02 Identify, estimate, and measure the angles of plane figures using appropriate tools.	<b>Student Book:</b> 182, 184, 185, 186, 187, 188, 189, 191, 192

## COMPETENCY GOAL 3

The learner will understand and use properties and relationships of plane figures.

Competency Objectives, Grade 5	ACCESS Math
3.01 Identify, define, describe, and accurately represent triangles, quadrilaterals, and other polygons.	<b>Student Book:</b> 187, 191, 192, 193, 213, 214, 288
3.02 Make and test conjectures about polygons involving: a) Sum of the measures of interior angles.	<b>Student Book:</b> 187, 189, 192, 193, 194
b) Lengths of sides and diagonals.	<b>Student Book:</b> 201, 202, 204, 213, 216
c) Parallelism and perpendicularity of sides and diagonals.	<b>Student Book:</b> 192, 193, 194
3.03 Classify plane figures according to types of symmetry (line, rotational).	<b>Student Book:</b> 208 Also see <i>Math at Hand</i> .
3.04 Solve problems involving the properties of triangles, quadrilaterals, and other polygons. a) Sum of the measures of interior angles.	<b>Student Book:</b> 187, 189, 192, 193, 194
b) Lengths of sides and diagonals.	<b>Student Book:</b> 201, 202, 204, 213, 216
c) Parallelism and perpendicularity of sides and diagonals.	<b>Student Book:</b> 192, 193, 194

## **COMPETENCY GOAL 4**

**The learner will understand and use graphs and data analysis.**

<b>Competency Objectives, Grade 5</b>	<b>ACCESS Math</b>
4.01 Collect, organize, describe, and display data (including stem-and-leaf plots) to solve problems.	<b>Student Book:</b> 158, 159, 160, 163, 164, 168, 169, 170, 172, 173, 174
4.02 Compare and contrast different representations of the same data; discuss the effectiveness of each representation.	<b>Student Book:</b> 172, 173, 175
4.03 Solve problems with data from a single set or multiple sets of data using median, range, and mode.	<b>Student Book:</b> 160, 165, 167

## **COMPETENCY GOAL 5**

**The learner will demonstrate an understanding of patterns, relationships, and elementary algebraic representation.**

<b>Competency Objectives, Grade 5</b>	<b>ACCESS Math</b>
5.01 Describe, extend, and generalize numeric and geometric patterns using tables, graphs, words, and symbols.	<b>Student Book:</b> 45, 58, 266, 273, 275
5.02 Use algebraic expressions, patterns, and one-step equations and inequalities to solve problems.	<b>Student Book:</b> 40, 41, 43, 44, 45, 47, 48, 49, 50, 53, 54, 55, 278, 280, 283, 284, 285
5.03 Identify, describe, and analyze situations with constant or varying rates of change.	<b>Student Book:</b> 153, 155, 273, 275

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 correlated to  
**North Carolina Mathematics Grade Level Competencies**  
**Grade 6**

**COMPETENCY GOAL 1**

**The learner will understand and compute with rational numbers.**

Competency Objectives, Grade 6	ACCESS Math
1.01 Develop number sense for negative rational numbers.  a) Connect model, number word, and number, using a variety of representations, including the number line.	<b>Student Book:</b> 256, 257
b) Compare and order.	<b>Student Book:</b> 256, 257, 258, 260
c) Make estimates in appropriate situations.	<b>Student Book:</b> 265, 267, 268, 269, 270
1.02 Develop meaning for percents.  a) Connect the model, number word, and number using a variety of representations.	<b>Student Book:</b> 141, 142, 143, 145, 146, 147, 148, 151, 152, 153, 155
b) Make estimates in appropriate situations.	No specific lesson in the Student Book addresses this objective. (See <i>Math on Call</i> .)
1.03 Compare and order rational numbers.	<b>Student Book:</b> 18, 65, 66, 67, 114, 115, 116, 117, 118, 258, 260
1.04 Develop fluency in addition, subtraction, multiplication, and division of non-negative rational numbers.  a) Analyze computational strategies.	<b>Student Book:</b> 31, 32, 33, 70, 71, 72, 74, 76, 77, 79, 119, 120, 121, 123, 124, 125, 126, 128, 129, 130, 131, 133
b) Describe the effect of operations on size.	<b>Student Book:</b> 31, 32, 33, 70, 71, 72, 74, 76, 77, 79, 119, 120, 121, 123, 124, 125, 126, 128, 129, 130, 131, 133

Competency Objectives, Grade 6	ACCESS Math
c) Estimate the results of computations.	<b>Student Book:</b> 21, 22, 31, 33
d) Judge the reasonableness of solutions.	<b>Student Book:</b> 21, 22, 31, 33
1.05 Develop fluency in the use of factors, multiples, exponential notation, and prime factorization.	<b>Student Book:</b> 26, 27, 28, 30, 76, 82, 83, 87, 88, 89, 91, 92, 93, 94, 95, 97, 98, 99, 291
1.06 Use exponential, scientific, and calculator notation to write very large and very small numbers.	<b>Student Book:</b> 26, 27, 28, 29, 30, 291
1.07 Develop flexibility in solving problems by selecting strategies and using mental computation, estimation, calculators or computers, and paper and pencil.	<b>Student Book:</b> 31, 32, 33, 70, 71, 72, 74, 76, 77, 79, 119, 120, 121, 123, 124, 125, 126, 128, 129, 130, 131, 133

## COMPETENCY GOAL 2

**The learner will select and use appropriate tools to measure two- and three-dimensional figures.**

Competency Objectives, Grade 6	ACCESS Math
2.01 Estimate and measure length, perimeter, area, angles, weight, and mass of two- and three-dimensional figures, using appropriate tools.	<b>Student Book:</b> 67, 182, 183, 184, 213, 212, 213, 214, 215, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226,
2.02 Solve problems involving perimeter/circumference and area of plane figures.	<b>Student Book:</b> 212, 213, 214, 215, 216, 217, 218, 219, 220

## COMPETENCY GOAL 3

**The learner will understand and use properties and relationships of geometric figures in the coordinate plane.**

Competency Objectives, Grade 6	ACCESS Math
3.01 Identify, and describe the intersection of figures in a plane.	<b>Student Book:</b> 181, 183
3.02 Identify the radius, diameter, chord, center, and circumference of a circle; determine the relationships among them.	<b>Student Book:</b> 217, 218, 219, 221
3.03 Transform figures in the coordinate plane and describe the transformation.	<b>Student Book:</b> 205, 206

Competency Objectives, Grade 6	ACCESS Math
3.04 Solve problems involving geometric figures in the coordinate plane.	<b>Student Book:</b> 275

## COMPETENCY GOAL 4

**The learner will understand and determine probabilities.**

Competency Objectives, Grade 6	ACCESS Math
4.01 Develop fluency with counting strategies to determine the sample space for an event. Include lists, tree diagrams, frequency distribution tables, permutations, combinations, and the Fundamental Counting Principle.	<b>Student Book:</b> 245, 246, 248, 249, 250, 251, 253
4.02 Use a sample space to determine the probability of an event.	<b>Student Book:</b> 234, 235, 236, 238, 245, 246
4.03 Conduct experiments involving simple and compound events.	<b>Student Book:</b> 240, 241, 243, 245, 246, 248
4.04 Determine and compare experimental and theoretical probabilities for simple and compound events.	<b>Student Book:</b> 234, 235, 236, 237, 238, 240, 241, 242, 243
4.05 Determine and compare experimental and theoretical probabilities for independent and dependent events.	No specific lesson in the Student Book addresses this objective. (See <i>Math on Call</i> .)
4.06 Design and conduct experiments or surveys to solve problems; report and analyze results.	<b>Student Book:</b> 158, 159, 160, 161, 163, 164, 165, 167, 240, 241, 243, 245, 246, 248

## COMPETENCY GOAL 5

The learner will demonstrate an understanding of simple algebraic expressions.

Competency Objectives, Grade 6	ACCESS Math
5.01 Simplify algebraic expressions and verify the results using basic properties of rational numbers.  a) Identity.	No specific lesson in the Student Book addresses this objective. (See <i>Math on Call</i> .)
b) Commutative.	<b>Student Book:</b> 32, 34, 35
c) Associative.	<b>Student Book:</b> 32, 34, 35
d) Distributive.	<b>Student Book:</b> 32, 34, 35
e) Order of operations.	<b>Student Book:</b> 38, 39, 41, 44, 46
5.02 Use and evaluate algebraic expressions.	<b>Student Book:</b> 40, 41, 43, 44, 45, 47
5.03 Solve simple (one- and two-step) equations or inequalities.	<b>Student Book:</b> 48, 49, 50, 52, 53, 54, 55, 278, 279, 280, 283, 284, 285, 287
5.04 Use graphs, tables, and symbols to model and solve problems involving rates of change and ratios.	<b>Student Book:</b> 136, 137, 273



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**North Carolina Mathematics Grade Level Competencies**  
**Grade 7**

**COMPETENCY GOAL 1**

**The learner will understand and compute with rational numbers.**

Competency Objectives, Grade 7	ACCESS Math
1.01 Develop and use ratios, proportions, and percents to solve problems.	<b>Student Book:</b> 136, 137, 138, 140, 146, 148, 151, 152, 153, 200, 201, 202, 204
1.02 Develop fluency in addition, subtraction, multiplication, and division of rational numbers.  a) Analyze computational strategies.	<b>Student Book:</b> 21, 22, 23, 24, 31, 32, 33, 62, 133
b) Describe the effect of operations on size.	<b>Student Book:</b> 21, 22, 23, 24, 31, 32, 33, 62, 133
c) Estimate the results of computations.	<b>Student Book:</b> 21, 22, 31, 33
d) Judge the reasonableness of solutions.	<b>Student Book:</b> 21, 22, 31, 33
1.03 Develop flexibility in solving problems by selecting strategies and using mental computation, estimation, calculators or computers, and paper and pencil.	<b>Student Book:</b> 21, 22, 23, 24, 31, 32, 33, 62, 133

**COMPETENCY GOAL 2**

**The learner will understand and use measurement involving two- and three-dimensional figures.**

Competency Objectives, Grade 7	ACCESS Math
2.01 Draw objects to scale and use scale drawings to solve problems.	No specific lesson in the Student Book addresses this objective. (See <i>Math on Call</i> .)
2.02 Solve problems involving volume and surface area of cylinders, prisms, and composite shapes.	<b>Student Book:</b> 222, 223, 224, 226, 227, 228, 229, 231

### COMPETENCY GOAL 3

The learner will understand and use properties and relationships in geometry.

Competency Objectives, Grade 7	ACCESS Math
3.01 Using three-dimensional figures: a) Identify, describe, and draw from various views (top, side, front, corner).	<b>Student Book:</b> 223, 224, 226
b) Build from various views.	No specific lesson in the Student Book addresses this objective. (See <i>Math on Call</i> .)
c) Describe cross-sectional views.	No specific lesson in the Student Book addresses this objective.
3.02 Identify, define, and describe similar and congruent polygons with respect to angle measures, lengths of sides, and proportionality of sides.	<b>Student Book:</b> 195, 196, 197, 199, 200, 201, 202, 204
3.03 Use scaling and proportional reasoning to solve problems related to similar and congruent polygons.	<b>Student Book:</b> 200, 201, 202, 204

### COMPETENCY GOAL 4

The learner will understand and use graphs and data analysis.

Competency Objectives, Grade 7	ACCESS Math
4.01 Collect, organize, analyze and display data (including box plots and histograms) to solve problems.	<b>Student Book:</b> 158, 159, 160, 162, 163, 164, 165, 167, 168, 169, 170, 172, 173, 174, 175, 177
4.02 Calculate, use, and interpret the mean, median, mode, range, frequency distribution, and inter-quartile range for a set of data.	<b>Student Book:</b> 160, 165, 167
4.03 Describe how the mean, median, mode, range, frequency distribution, and inter-quartile range of a set of data affect its graph.	<b>Student Book:</b> 160, 165, 167
4.04 Identify outliers and determine their effect on the mean, median, mode, and range of a set of data.	<b>Student Book:</b> 165
4.05 Solve problems involving two or more sets of data using appropriate statistical measures.	No specific lesson in the Student Book addresses this objective.

## COMPETENCY GOAL 5

The learner will demonstrate an understanding of linear relations and fundamental algebraic concepts.

Competency Objectives, Grade 7	ACCESS Math
5.01 Identify, analyze, and create linear equations, sequences, and functions using symbols, graphs, tables, diagrams, and written descriptions.	<b>Student Book:</b> 272, 273, 275
5.02 Translate among different representations of algebraic expressions, equations and inequalities.	<b>Student Book:</b> 43, 44, 48, 49, 283, 284
5.03 Use and evaluate algebraic expressions, linear equations or inequalities to solve problems.	<b>Student Book:</b> 40, 41, 43, 44, 45, 47, 48, 49, 50, 52, 53, 54, 55, 278, 280, 283, 284, 285, 287
5.04 Develop fluency in the use of formulas to solve problems.	<b>Student Book:</b> 153, 212, 213, 214, 217, 218, 219



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**Grade 8**

**COMPETENCY GOAL 1**

**The learner will understand and compute with real numbers**

Competency Objectives, Grade 8	ACCESS Math
1.01 Develop number sense for real numbers. a) Define and use irrational numbers.	<b>Student Book:</b> 218, 219, 221, 224, 228, 229, 231, 260
b) Compare and order.	<b>Student Book:</b> 260
c) Use estimates of irrational numbers in appropriate situations.	<b>Student Book:</b> 218, 219, 221, 224, 228, 229, 231
1.02 Develop flexibility in solving problems by selecting strategies and using mental computation, estimation, calculators or computers, and paper and pencil.	<b>Student Book:</b> 21, 22, 31, 32, 33, 43, 44, 45, 48, 49, 50, 51, 52, 53, 54, 55, 57, 69, 96, 101, 105, 113, 118, 123, 128, 133, 136, 140, 158, 159, 160, 163, 164, 168, 169, 170, 173, 174, 177, 184, 189, 199, 204, 216, 221, 226, 231, 235, 238, 236, 243, 265, 273, 275, 278, 279, 280, 282

**COMPETENCY GOAL 2**

**The learner will understand and use measurement concepts.**

Competency Objectives, Grade 8	ACCESS Math
2.01 Determine the effect on perimeter, area or volume when one or more dimensions of two- and three-dimensional figures are changed.	<b>Student Book:</b> 216
2.02 Apply and use concepts of indirect measurement.	<b>Student Book:</b> 201, 202, 204

### COMPETENCY GOAL 3

The learner will understand and use properties and relationships in geometry.

Competency Objectives, Grade 8	ACCESS Math
3.01 Represent problem situations with geometric models.	<b>Student Book:</b> 186, 195, 196, 197, 200, 201, 202, 205, 206, 271, 272, 273
3.02 Apply geometric properties and relationships, including the Pythagorean theorem, to solve problems.	<b>Student Book:</b> 197, 201, 202, 204
3.03 Identify, predict, and describe dilations in the coordinate plane.	No specific lesson in the Student Book addresses this objective. (See <i>Math on Call</i> .)

### COMPETENCY GOAL 4

The learner will understand and use graphs and data analysis.

Competency Objectives, Grade 8	ACCESS Math
4.01 Collect, organize, analyze and display data (including scatterplots) to solve problems.	<b>Student Book:</b> 158, 159, 160, 163, 164, 168, 169, 170, 173, 174 Also see <i>Math on Call</i> .
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.	No specific lesson in the Student Book addresses this objective. (See <i>Math on Call</i> .)
4.03 Identify misuses of statistical and numerical data.	<b>Student Book:</b> 175

### COMPETENCY GOAL 5

The learner will understand and use linear relations and functions.

Competency Objectives, Grade 8	ACCESS Math
5.01 Develop and understanding of function. a) Translate among verbal, tabular, graphic, and algebraic representations of functions.	<b>Student Book:</b> 45, 273
b) Identify relations and functions as linear or nonlinear.	<b>Student Book:</b> 272, 273, 275
c) Find, identify, and interpret the slope (rate of change) and intercepts of a linear relation.	<b>Student Book:</b> 275 Also see <i>Math on Call</i> .

Competency Objectives, Grade 8	ACCESS Math
d) Interpret and compare properties of linear functions from tables, graphs, or equations.	<b>Student Book:</b> 273, 275
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.	No specific lesson in the Student Book addresses this objective. (See <i>Math on Call</i> .)
5.03 Solve problems using linear equations and inequalities; justify symbolically and graphically.	<b>Student Book:</b> 48, 49, 50, 52, 53, 54, 55, 273, 275, 275, 279, 280, 282, 283, 284, 285, 287
5.04 Solve equations using the inverse relationship of addition and subtraction, multiplication and division, squares and square roots, and cubes and cube roots.	<b>Student Book:</b> 48, 49, 50, 52, 53, 54, 55, 273, 275, 275, 279, 280, 282, 283, 284, 285, 287



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