ABSS Advanced 6th Grade Scope & Sequence

Notes:

- Start by clicking on the link in the Conceptual Cluster column to access the NC²ML Instructional Framework Document (guidance on sequencing, rationale and teaching techniques) and the Open Up Resources.
- Extension/Enrichment resources for the Advanced Course are available on each individual standard map.
- District Benchmark Information:
  - Benchmark #1 - all standards in yellow
  - Benchmark #2 - all standards in yellow + green

Important Documents & Resources

ABSS	NCDPI

• Big Ideas Math Alignment Document
• Big Ideas Dynamic Classroom Guided Notes - NEW for 2025-2026
  ○ 6th Grade
  ○ 7th Grade
	• NC Standard Course of Study

• ABSS CFA's in Schoolnet (updated 08/03/2023- scheduled for schools)	• NCDPI Unpacked Document
• ABSS 6th Grade Math Data Tracker	• 6th Grade Unpacked Examples
• ABSS Middle School Mathematics Differentiated Academic Core	• NC Literacy Instructional Standards & Mathematics 6-8 (NEW)
• ABSS Secondary District Provided Resources	• #GoOpenNC Resources (found in the NCEd Cloud)
• ABSS Secondary Math News	• NC²ML Collaborative Resources for Middle Grades
• ABSS ALEKS Information - UPDATED for 2025-2026	• 2023-2024 NCDPI Test Development Resource List (*updated 9/5/23)*

Conceptual Cluster	Math Standards	Supporting Standards	Recommended Timeframe for Cluster	Notes for Advanced Courses
	First Week Activities		1 Week	
1. Reasoning with Factors and Multiples Cluster ● Instructional Framework ● Open Up Resources (sign up for a free account to access the resources for your grade level)	NC.6.NS.4 Understand and use prime factorization and the relationships between factors to: • Find the unique prime factorization for a whole number. • Find the greatest common factor of two whole numbers less than or equal to 100. • Use the greatest common factor and the distributive property to rewrite the sum of two whole numbers, each less than or equal to 100. • Find the least common multiple of two whole numbers less than or equal to 12 to add and subtract fractions with unlike denominators.	EE.1 EE.3 EE.4 RP.3 NS.1	1 Week	
2. Division of Fractions Conceptions Cluster ● Instructional Framework ● Open Up Resources (sign up for a free account to access the resources for your grade level)	NC.6.NS.1 Use visual models and common denominators to: ● Interpret and compute quotients of fractions. ● Solve real-world and mathematical problems involving division of fractions.	NS.4 RP.3 G.1	2 Weeks	
3. Making Sense of Decimal Computations Cluster	NC.6.NS.2 Fluently divide using long division with a minimum of a four-digit dividend and interpret the quotient and remainder in context.	G.1	3 Weeks	Advanced Courses only: When teaching

• Instructional Framework • Open Up Resources (sign up for a free account to access the resources for your grade level)	Additional Standard for Advanced Classes NC.7.NS.2 Apply and extend previous understandings of multiplication and division. C. Use division and previous understandings of fractions and decimals. ○ Convert a fraction to a decimal using long division. ○ Understand that the decimal form of a rational number terminates in 0s or eventually repeats.			division, incorporate 7NS2 (Converting fractions to decimals with long division) Also as time allows, cover 7NS1 & 7NS2 operations with integers so that these can be practiced with upcoming standards.
	NC.6.NS.3 Apply and extend previous understandings of decimals to develop and fluently use the standard algorithms for addition, subtraction, multiplication and division of decimals.			
	NC.6.NS.9 Apply and extend previous understandings of addition and subtraction. • Describe situations in which opposite quantities combine to make 0. • Understand p + q as the number located a distance q from p, in the positive or negative direction depending on the sign of q. Show that a number and its additive inverse create a zero pair. • Understand subtraction of integers as adding the additive inverse, p − q = p +(– q). Show that the distance between two integers on the number line is the absolute value of their difference. • Use models to add and subtract integers from -20 to 20 and describe real-world contexts using sums and differences.			

	Additional Standards for Advanced Classes NC.7.NS.1 Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers, using the properties of operations, and describing real-world contexts using sums and differences. NC.7.NS.2 Apply and extend previous understandings of multiplication and division. A. Understand that a rational number is any number that can be written as a quotient of integers with a non-zero divisor. B. Apply properties of operations as strategies, including the standard algorithms, to multiply and divide rational numbers and describe the product and quotient in real-world contexts. NC.8.NS.1 Understand that every number has a decimal expansion. Building upon the definition of a rational number, know that an irrational number is defined as a non-repeating, non-terminating decimal. (*Introduce Rational number vocabulary only)*			
4. Reasoning with Algebraic Expression Cluster ● Instructional Framework ● Open Up Resources (sign up for a free account to access the resources for your grade level)	NC.6.EE.1 Write and evaluate numerical expressions, with and without grouping symbols, involving whole-number exponents. NC.6.EE.2 Write, read, and evaluate algebraic expressions. ● Write expressions that record operations with numbers and with letters standing for numbers. ● Identify parts of an expression using mathematical terms and view one or more of those parts as a single entity. ● Evaluate expressions at specific values of their variables using expressions that arise from formulas used in real-world problems.	NS.4	3 Weeks	Advanced Courses Only: Include negative numbers (7.EE.1) when teaching and learning Simplifying Expressions (6.EE.3 &

	NC.6.EE.3 Apply the properties of operations to generate equivalent expressions without exponents. NC.6.EE.4 Identify when two expressions are equivalent and justify with mathematical reasoning. NC.6.EE.6 Use variables to represent numbers and write expressions when solving a real-world or mathematical problem. Additional Standards for Advanced Classes NC.7.EE.1 Apply properties of operations as strategies to: ● Add, subtract, and expand linear expressions with rational coefficients. ● Factor linear expression with an integer GCF. NC.7.EE.2 Understand that equivalent expressions can reveal real-world and mathematical relationships. Interpret the meaning of the parts of each expression in context.			6.EE.4) Also interpret the real life meaning that an algebraic expression represents (7.EE.2)
5. Ratio Reasoning Cluster ● Instructional Framework ● Open Up Resources (sign up for a free account to access the resources for your grade level)	NC.6.RP.1 Understand the concept of a ratio and use ratio language to: ● Describe a ratio as a multiplicative relationship between two quantities. ● Model a ratio relationship using a variety of representations. NC.6.RP.2 Understand that ratios can be expressed as equivalent unit ratios by finding and interpreting both unit ratios in context. Additional Standard for Advanced Classes NC.7.RP.1 Compute unit rates associated with ratios of fractions to solve real-world and mathematical problems.	NS.4 EE.9 Use the later clusters containing these standards to review the ideas in this cluster.	5 weeks NC.6.RP.3 - Part C is incorporated into NC.6.RP.4	Advanced Courses Only: Include complex unit ratios (7RP1) when teaching and learning 6RP2. Also dig deeper by covering 7RP2

	NC.6.RP.3 (all bullets) Use ratio reasoning with equivalent whole-number ratios to solve real-world and mathematical problems by ● Creating and using a table to compare ratios. ● Finding missing values in the tables. ● Using a unit ratio ● Converting and manipulating measurements using given ratios. ● Plotting the pairs of values on the coordinate plane.			
	Additional Standard for Advanced Classes NC.7.RP.2 Recognize and represent proportional relationships between quantities. NC.7.RP.2a. Understand that a proportion is a relationship of equality between ratios. ● Represent proportional relationships using tables and graphs. ● Recognize whether ratios are in a proportional relationship using tables and graphs. ● Compare two different proportional relationships using tables, graphs, equations, and verbal descriptions.			
	NC.6.RP.4 Use ratio reasoning to solve real-world and mathematical problems with percents by: ● Understanding and finding a percent of a quantity as a ratio per 100. ● Using equivalent ratios, such as benchmark percents (50%, 25%, 10%, 5%, 1%), to determine a part of any given quantity. ● Finding the whole, given a part and the percent			
District Benchmark #1: Early December				

6. Integer and Rational Number Reasoning Cluster ● Instructional Framework ● Open Up Resources (sign up for a free account to access the resources for your grade level)	NC.6.NS.5 Understand and use rational numbers to: ● Describe quantities having opposite directions or values. ● Represent quantities in real-world contexts, explaining the meaning of 0 in each situation. ● Understand the absolute value of a rational number as its distance from 0 on the number line to: ○ Interpret absolute value as magnitude for a positive or negative quantity in a real world context. ○ Distinguish comparisons of absolute value from statements about order NC.6.NS.6 (all bullets) Understand rational numbers as points on the number line and as ordered pairs on a coordinate plane. A. On a number line: ○ Recognize opposite signs of numbers as indicating locations on opposite sides of 0 and that the opposite of the opposite of a number is the number itself. ○ Find and position rational numbers on a horizontal or vertical number line. NC.6.NS.7 Understand ordering of rational numbers. A. Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. B. Write, interpret, and explain statements of order for rational numbers in real-world contexts.	EE.7 EE.8 Use the later clusters containing these standards to review the ideas in this cluster.	3 weeks	
7. Reasoning with Algebraic Equations Cluster	NC.6.EE.5 (Equations) Use substitution to determine whether a given number in a specified set makes an equation true.	EE.2 NS.9 NS.1-3	5 weeks	Advanced Courses Only: Teach and learn to solve

• Instructional Framework • Open Up Resources (sign up for a free account to access the resources for your grade level)	NC.6.EE.7 (Equations) Solve real-world and mathematical problems by writing and solving equations of the form: • $x + p = q$ in which p, q and x are all nonnegative rational numbers; and, • $p \cdot x = q$ for cases in which p, q and x are all nonnegative rational numbers. Additional Standard for Advanced Classes NC.7.EE.4a (Equations). Construct equations to solve problems by reasoning about the quantities. ● Fluently solve multistep equations with the variable on one side, including those generated by word problems. ● Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. ● Interpret the solution in context. NC.6.EE.8 (Inequalities) Reason about inequalities by: • Using substitution to determine whether a given number in a specified set makes an inequality true. • Writing an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real world or mathematical problem. • Recognizing that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions. • Representing solutions of inequalities on number line diagrams.	NS.6 RP.3		multi-step equations (7.EE.4a) along with one step. (6.EE.7). Also teach and learn to solve multi-step inequalities (7.EE.4b) along with 6.EE.8

	Additional Standard for Advanced Classes NC.7.EE.4b Construct inequalities to solve problems by reasoning about the quantities. ● Fluently solve multi-step inequalities with the variable on one side, including those generated by word problems. ● Compare an algebraic solution process for equations and an algebraic solution process for inequalities. ● Graph the solution set of the inequality and interpret in context. NC.6.EE.9 Represent and analyze quantitative relationships by: ● Using variables to represent two quantities in a real-world or mathematical context that change in relationship to one another. ● Analyze the relationship between quantities in different representations (context, equations, tables, and graphs).			
8. Making Sense of Coordinate Planes Cluster ● Instructional Framework ● Open Up Resources (sign up for a free account to access the resources for your grade level)	NC.6.NS.6 (all bullets) Understand rational numbers as points on the number line and as ordered pairs on a coordinate plane. b. On a coordinate plane: ● Understand signs of numbers in ordered pairs as indicating locations in quadrants. ● Recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. ● Find and position pairs of rational numbers on a coordinate plane. NC.6.NS.8 Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.	NS.5 NS.6a NS.9	3 weeks	

	NC.6.G.3 Use the coordinate plane to solve real-world and mathematical problems by: ● Drawing polygons in the coordinate plane given coordinates for the vertices. ● Using coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate			
9. Reasoning with Area and Surface Area Cluster ● Instructional Framework ● Open Up Resources (sign up for a free account to access the resources for your grade level)	NC.6.G.1 Create geometric models to solve real-world and mathematical problems to: ● Find the area of triangles by composing into rectangles and decomposing into right triangles. ● Find the area of special quadrilaterals and polygons by decomposing into triangles or rectangles. NC.6.G.4 Represent right prisms and right pyramids using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems. Additional Standard for Advanced Classes NC.7.G.6 Solve real-world and mathematical problems involving: ● Area and perimeter of two-dimensional objects composed of triangles, quadrilaterals, and polygons. ● Volume and surface area of pyramids, prisms, or three-dimensional objects composed of cubes, pyramids, and right prisms.	NS.1 NS.2 NS.3 EE.7 Geometric models provide contexts that can be used in the later clusters that contain these standards.	2 Weeks	Advanced Courses Only: Incorporate more rigorous problem solving with Area and Perimeter (7G6) and when learning Surface Area (6G4) teach and learn to calculate surface area with and without a net. (7G6)
10. Making Sense of Volume Cluster	NC.6.G.2 Apply and extend previous understandings of the volume of a right rectangular prism to find the volume of right rectangular	NS.1 NS.3	2 Weeks	

• Instructional Framework • Open Up Resources (sign up for a free account to access the resources for your grade level)	prisms with fractional edge lengths. Apply this understanding to the context of solving real-world and mathematical problems.	EE.1 G.1 G.4		
11. Statistical Reasoning Cluster • Instructional Framework • Open Up Resources (sign up for a free account to access the resources for your grade level)	NC.6.SP.1 (no change) Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. NC.6.SP.2 (no change) Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape. NC.6.SP.3 Understand that both a measure of center and a description of variability should be considered when describing a numerical data set. A. Determine the measure of center of a data set and understand that it is a single number that summarizes all the values of that data set. ○ Understand that a mean is a measure of center that represents a balance point or fair share of a data set and can be influenced by the presence of extreme values within the data set. ○ Understand the median as a measure of center that is the numerical middle of an ordered data set. B. Understand that describing the variability of a data set is needed to distinguish between data sets in the same scale, by	NS.3	2 weeks	Advanced Courses Only: Teach and learn how to calculate Mean Absolute Deviation, Range, and IQR and how to use this information to compare two data sets. (7SP3 & 7SP4)

	comparing graphical representations of different data sets in the same scale that have similar measures of center, but different spreads.			
	NC.6.SP.4 Display numerical data in plots on a number line. ● Use dot plots, histograms, and box plots to represent data. ● Compare the attributes of different representations of the same data.			
	NC.6.SP.5 Summarize numerical data sets in relation to their context. A. Describe the collected data by: ○ Reporting the number of observations in dot plots and histograms. ○ Communicating the nature of the attribute under investigation, how it was measured, and the units of measurement. B. Analyze center and variability by: ○ Giving quantitative measures of center, describing variability, and any overall pattern, and noting any striking deviations. ○ Justifying the appropriate choice of measures of center using the shape of the data distribution.			
	Additional Standard for Advanced Classes NC.7.SP.3 & NC.7.SP. 4 NC.7.SP.3 Recognize the role of variability when comparing two populations. A. Calculate the measure of variability of a data set and understand that it describes how the values of the data set vary with a single number.			

	a. Understand the mean absolute deviation of a data set is a measure of variability that describes the average distance that points within a data set are from the mean of the data set. b. Understand that the range describes the spread of the entire data set. c. Understand that the interquartile range describes the spread of the middle 50% of the data. B. Informally assess the difference between two data sets by examining the overlap and separation between the graphical representations of two data sets. NC.7.SP.4 Use measures of center and measures of variability for numerical data from random samples to draw comparative inferences about two populations.			
Total Weeks: 32 Weeks				