

Correlation: 2016 Alabama Course of Study, Mathematics standards and NAEP Objectives

When teaching Alabama Course of Study content, NAEP objectives and items are useful for identifying a level of rigor which matches proficient student performance nation wide. The NAEP objectives identify content that could be included in lessons building toward master of the correlating standards from the *2016 Alabama Course of Study: Mathematics*.

Grade	Grade 2 Alabama Course of Study Standard	NAEP Objective(s) Grade 4	NAEP Objective(s) Grade 8
2	1. [2.OA.1] Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. (See Appendix A, Table 1.)	4NPO3a Add and subtract: • Whole numbers, or • Fractions with like denominators, or • Decimals through hundredths.	
2	2. [2.OA.2] Fluently add and subtract within 20 using mental strategies. (See standard 6, Grade 1, for a list of mental strategies.) By end of Grade 2, know from memory all sums of two one-digit numbers.	4NPO3a Add and subtract: • Whole numbers, or • Fractions with like denominators, or • Decimals through hundredths. 4NPO3f Solve application problems involving numbers and operations.	
2	3. [2.OA.3] Determine whether a group of objects (up to 20) has an odd or even number of members, e.g., by pairing objects or counting them by 2s; write an equation to express an even number as a sum of two equal addends.	4NPO5a Identify odd and even numbers.	
2	4. [2.OA.4] Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.		

2	<p>5. [2.NBT.1] Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases:</p> <p>a. 100 can be thought of as a bundle of ten tens, called a "hundred."</p> <p>b. The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).</p>	<p>4NPO1a Identify place value and actual value of digits in whole numbers.</p> <p>4NPO1c Compose or decompose whole quantities by place value (e.g., write whole numbers in expanded notation using place value: $342 = 300 + 40 + 2$).</p>	
2	<p>6. [2.NBT.2] Count within 1000; skip-count by 5s, 10s, and 100s.</p>		
2	<p>7. [2.NBT.3] Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.</p>	<p>4NPO1d Write or rename whole numbers (e.g., $10 = 5 + 5$, $12 - 2$, or 2×5).</p> <p>4NPO1e Connect model, number word, or number using various models and representations for whole numbers, fractions, and decimals.</p>	
2	<p>8. [2.NBT.4] Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits using $>$, $=$, and $<$ symbols to record the results of comparisons.</p>	<p>4NPO1i Order or compare whole numbers, decimals, or fractions.</p>	
2	<p>9. [2.NBT.5] Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.</p>		
2	<p>10. [2.NBT.6] Add up to four two-digit numbers using strategies based on place value and properties of operations.</p>	<p>4NPO3a Add and subtract: • Whole numbers, or • Fractions with like denominators, or • Decimals through hundredths.</p>	

2	11. [2.NBT.7] Add and subtract within 1000 using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.	4NPO3a Add and subtract: • Whole numbers, or • Fractions with like denominators, or • Decimals through hundredths.	
2	12. [2.NBT.8] Mentally add 10 or 100 to a given number 100-900, and mentally subtract 10 or 100 from a given number 100-900.		
2	13. [2.NBT.9] Explain why addition and subtraction strategies work, using place value and the properties of operations. (Explanations may be supported by drawings or objects.)	4NPO6a Explain or justify a mathematical concept or relationship (e.g., explain why 15 is an odd number or why $7-3$ is not the same as $3-7$).	
2	14. [2.MD.1] Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.	4M1e Select or use appropriate measurement instruments, such as a ruler, meter stick, clock, thermometer, or other scaled instruments. 4M2a Select or use an appropriate type of unit for the attribute being measured, such as length, time, or temperature.	8M1e Select or use appropriate measurement instrument to determine or create a given length, area, column, angle, weight, or mass.
2	15. [2.MD.2] Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.	4M1b Compare objects with respect to a given attribute, such as length, area, volume, time, or temperature.	8M1c Estimate the size of an object with respect to a given measurement attribute (e.g., area).

2	16. [2.MD.3] Estimate lengths using units of inches, feet, centimeters, and meters.	4NPO2b Make estimates appropriate to a given situation with whole numbers, fractions, or decimals by • Knowing when to estimate, • Selecting the appropriate type of estimate, including overestimate, underestimate, and range of estimate, or • Selecting the appropriate method of estimation (e.g., rounding). 4M1c Estimate the size of an object with respect to a given measurement attribute (e.g., length, perimeter, or area using a grid).	
2	17. [2.MD.4] Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.	4M1b Compare objects with respect to a given attribute, such as length, area, volume, time, or temperature.	8M1b Compare objects with respect to length, area, volume, angle measurement, weight, or mass.
2	18. [2.MD.5] Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.		
2	19. [2.MD.6] Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, ..., and represent whole-number sums and differences within 100 on a number line diagram.	4NPO1b Represent numbers using models such as base 10 representations, number lines, and two-dimensional models. 4NPO1e Connect model, number word, or number using various models and representations for whole numbers, fractions, and decimals.	
2	20. [2.MD.7] Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.		

2	21. [2.MD.8] Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using \$ and ¢ symbols appropriately. - Example: If you have 2 dimes and 3 pennies, how many cents do you have?	4NPO3f Solve application problems involving numbers and operations.	
2	22. [2.MD.9] Generate measurement data by measuring lengths of several objects to the nearest whole unit or by making repeated measurements of the same object. Show the measurements by making a line plot where the horizontal scale is marked off in whole-number units.		
2	23. [2.MD.10] Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph. (See Appendix A, Table 1.)		
2	24. [2.G.1] Recognize and draw shapes having specified attributes such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes. (Sizes are compared directly or visually, not compared by measuring.)	4G1b Identify or describe (informally) real-world objects using simple plane figures (e.g., triangles, rectangles, squares, and circles) and simple solid figures (e.g., cubes, spheres, and cylinders). 4G3f Describe and compare properties of simple and compound figures composed of triangles, squares, and rectangles.	
2	25. [2.G.2] Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.	4NPO1e Connect model, number word, or number using various models and representations for whole numbers, fractions, and decimals.	

2	26. [2.G.3] Partition circles and rectangles into two, three, or four equal shares; describe the shares using the words <i>halves</i> , <i>thirds</i> , <i>half of</i> , <i>a third of</i> , etc.; and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.	4NPO1e Connect model, number word, or number using various models and representations for whole numbers, fractions, and decimals.	
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