

Appendix C

New Mexico Mathematics Standards Alignment to Common Core State Standards for Mathematics

New Mexico Mathematics Standards Alignment to Common Core State Standards for Mathematics

CCSS Standard ID	Common Core State Standard		CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
	Number	Letter					
	Grade K: CC Know number names and the count sequence.						
K.CC.1	1. Count to 100 by ones and by tens.			K.N.1.1.a		P	The CCSS standard is much more specific than the related NM standard, including essential content not specified in the NM standard. NM.K.N.1.1. addresses counting to 20, but does not address counting to 100 by ones and by tens.
K.CC.2	2. Count forward beginning from a given number within the known sequence (instead of having to begin at 1).			K.N.1.1.a		P	The CCSS standard is much more specific than the related NM standard, including essential content not specified in the NM standard. NM.K.N.1.1.a does not address counting from a given number within the known sequence instead of having to begin at 1.
K.CC.3	3. Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).			K.N.1.1.b K.N.1.1.d K.N.2.1		P	The related NM standard(s) do not describe complete coverage of the CCSS standard. NM.K.1.1.b, NM.K.1.1.d do not specifically address the concept of zero (with 0 representing a count of no objects).
	Grade K: CC Count to tell the number of objects.						
K.CC.4a	4. Understand the relationship between numbers and quantities; connect counting to cardinality.	a. When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object.		K.N.1.1.a K.N.1.1.d K.N.1.1.e		P	The CCSS standard is much more specific than the related NM standards, including essential content not specified in the NM standards.
K.CC.4b		b. Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted.					
K.CC.4c		c. Understand that each successive number name refers to a quantity that is one larger.					

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K.CC.5	5. Count to answer “how many?” questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1–20, count out that many objects.			K.N.1.1.a		P	The CCSS standard is much more specific than the related NM standard, including essential content not specified in the NM standard. NM.K.N.1.1.a does not address the specific type of arrangement; arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration and does not specifically address the ability when given a number from 1-20 to count out that many objects.
Grade K: CC Compare numbers.							
K.CC.6	6. Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies. ¹		¹ Include groups with up to ten objects.	K.N.1.1.f		F	
K.CC.7	7. Compare two numbers between 1 and 10 presented as written numerals.			K.N.1.1.c		F	
Grade K: OA Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.							
K.OA.1	1. Represent addition and subtraction with objects, fingers, mental images, drawings ² , sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.		² Drawings need not show details, but should show the mathematics in the problem. (This applies wherever drawings are mentioned in the Standards.)	K.N.2.2 K.A.2.1 K.A.3.1		P	Expressions and equations are covered at NM. 1.A.2.1

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K.OA.2	2. Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.			K.N.2.2		F	
K.OA.3	3. Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., $5 = 2 + 3$ and $5 = 4 + 1$).				1.N.1.1.f	P	The CCSS standard is much more specific than the related NM standard, including essential content not specified in the NM standard. NM.1.N.1.1.f does not specifically address recording each decomposition by a drawing or equation.
K.OA.4	4. For any number from 1 to 9, find the number that makes 10 when added to the given number, e.g., by using objects or drawings, and record the answer with a drawing or equation.				1.N.3.1	F	While the related NM standard covers the essential content contained in the CCSS, the NM standard does not specify some of the details listed in the CCSS.
K.OA.5	5. Fluently add and subtract within 5.				1.N.2.1	P	The CCSS standard is much more specific than the related NM standards, including essential content not specified in the NM standard. NM.1.N.2.1 does not specifically address fluently adding and subtracting within 5.

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Grade K: NBT Work with numbers 11–19 to gain foundations for place value.							
K.NBT.1	1. Compose and decompose numbers from 11 to 19 into ten ones and some further ones, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (e.g., $18 = 10 + 8$); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.				1.N.1.1.f	P	The CCSS standard is much more specific than the related NM standard, including essential content not specified in the NM standard. NM.1.N.11.f does not specify numbers from 11-19.
Grade K: MD Describe and compare measurable attributes.							
K.MD.1	1. Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.			K.M.1.1 K.M.1.3		P	The related NM standards do not describe complete coverage of the CCSS standards. NM.K.M.1.1, NM.K.M.D.1.3, do not address describing several measurable attributes of a single object.
K.MD.2	2. Directly compare two objects with a measurable attribute in common, to see which object has “more of”/“less of” the attribute, and describe the difference. <i>For example, directly compare the heights of two children and describe one child as taller/shorter.</i>			K.M.1.1		F	

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	Grade K: MD Classify objects and count the number of objects in each category.						
K.MD.3	3. Classify objects into given categories; count the numbers of objects in each category and sort the categories by count. ³		³ Limit category counts to be less than or equal to 10.	K.G.1.1.a K.N.1.1.a		F	While the related NM standards cover the essential content contained in the CCSS, the NM standards do not specify some of the details listed in the CCSS.
	Grade K: G Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).						
K.G.1	1. Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as <i>above, below, beside, in front of, behind, and next to</i> .			K.G.1.1.a K.G.2.2 K.G.4.2		F	
K.G.2	2. Correctly name shapes regardless of their orientations or overall size.					N	No grade-appropriate NM standards address the content of this CCSS standard.
K.G.3	3. Identify shapes as two-dimensional (lying in a plane, "flat") or three-dimensional ("solid").				1.G.1.1.b 1.G.1.1.d	F	

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	Grade K: G Analyze, compare, create, and compose shapes.						
K.G.4	4. Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/“corners”) and other attributes (e.g., having sides of equal length).			K.G.1.1.b K.A.1.1 K.A.1.2		P	The CCSS standard is much more specific than the related NM standards, including essential content not specified in the NM standards. NM.K.G.1.1.b does not address shapes in different sizes and orientations.
K.G.5	5. Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.			K.G.1.1.a		F	
K.G.6	6. Compose simple shapes to form larger shapes. <i>For example, “Can you join these two triangles with full sides touching to make a rectangle?”</i>				2.G.1.1.b	F	

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	Number	Letter					
	Grade 1: OA Represent and solve problems involving addition and subtraction.						
1.OA.1	1. Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem. ²		² See Glossary, Table 1.	1.N.3.1 1.N.3.3 1.A.2.3		P	The CCSS standard addresses higher level content than the related NM standards. NM.1.N.3.1 has a limit of 10. NM.1.A.2.3 has a limit of 10.
1.OA.2	2. Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.			1.N.2.1 1.N.2.3 1.A.2.3		P	The CCSS standard addresses higher level content than the related NM standards. NM.1.N.2.3 has a limit of 15. NM.1.A.2.3 has a limit of 10.

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	Grade 1: OA Understand and apply properties of operations and the relationship between addition and subtraction.						
1.OA.3	3. Apply properties of operations as strategies to add and subtract. ³ <i>Examples: If $8 + 3 = 11$ is known, then $3 + 8 = 11$ is also known. (Commutative property of addition.) To add $2 + 6 + 4$, the second two numbers can be added to make a ten, so $2 + 6 + 4 = 2 + 10 = 12$. (Associative property of addition.)</i>		³ Students need not use formal terms for these properties.		3.A.2.2	F	While the related NM standard covers the essential content contained in the CCSS, the NM standard does not specify some of the details listed in the CCSS.
1.OA.4	4. Understand subtraction as an unknown-addend problem. <i>For example, subtract $10 - 8$ by finding the number that makes 10 when added to 8.</i>			1.N.2.4		F	
	Grade 1: OA Add and subtract within 20.						
1.OA.5	5. Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).			1.N.1.1.b 1.N.1.1.c 1.N.3.1		F	

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1.OA.6	6. Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., $8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$); decomposing a number leading to a ten (e.g., $13 - 4 = 13 - 3 - 1 = 10 - 1 = 9$); using the relationship between addition and subtraction (e.g., knowing that $8 + 4 = 12$, one knows $12 - 8 = 4$); and creating equivalent but easier or known sums (e.g., adding $6 + 7$ by creating the known equivalent $6 + 6 + 1 = 12 + 1 = 13$).			1.N.1.1.f 1.N.2.1 1.N.2.2 1.N.2.4 1.N.3.1 1.N.3.3		F	While the related NM standards cover the essential content contained in the CCSS, the NM standards do not specify some of the details listed in the CCSS.
Grade 1: OA Work with addition and subtraction equations.							
1.OA.7	7. Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. <i>For example, which of the following equations are true and which are false? $6 = 6$, $7 = 8 - 1$, $5 + 2 = 2 + 5$, $4 + 1 = 5 + 2$.</i>			1.A.2.2		P	The related NM standard does not describe complete coverage of the CCSS standard. The NM standard does not address determining if equations are true or false. NM 2.A.2.2 also partially addresses this CCSS content.

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1.OA.8	8. Determine the unknown whole number in an addition or subtraction equation relating to three whole numbers. <i>For example, determine the unknown number that makes the equation true in each of the equations $8 + ? = 11$, $5 = \quad - 3$, $6 + 6 = \quad$.</i>				2.A.2.3	F	While the related NM standard covers the essential content contained in the CCSS, the NM standard does not specify some of the details listed in the CCSS. NM.1.A.2.3 limits variables to numbers up to 10. NM.2.A.2.3 limits variables to numbers up to 20.
Grade 1: NBT Extend the counting sequence.							
1.NBT.1	1. Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.			1.N.1.1.a 1.N.1.1.b 1.N.1.1.i		P	The related NM standards do not describe complete coverage of the CCSS standard. NM.1.N.1.1.a (has limit to 100). NM.1.N.1.1.b (has limit to 50).
Grade 1: NBT Understand place value.							
1.NBT.2a	2. Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases:	a. 10 can be thought of as a bundle of ten ones — called a “ten.”		1.N.1.1.g		P	The CCSS standard addresses higher level content than the related NM standard.
1.NBT.2b		b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.					
1.NBT.2c		c. The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).					

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1.NBT.3	3. Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols $>$, $=$, and $<$.			1.N.1.1.e 1.A.2.1		P	The CCSS standard is much more specific than the related NM standards, including essential content not specified in the NM standards. NM.1.A.2.1 does not address comparison using the symbols $>$, $<$.
Grade 1: NBT Use place value understanding and properties of operations to add and subtract.							
1.NBT.4	4. Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, 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 and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.			1.N.2.1 1.N.2.2 1.N.2.4 1.A.3.1 1.A.3.2		P	The CCSS standard is much more specific than the related NM standards, including essential content not specified in the NM standards. NM standards do not specifically address using strategies based on place value, properties of operations, relating the strategy to a written method and explaining the reasoning used.
1.NBT.5	5. Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.			1.N.3.2		P	The CCSS standard is much more specific than the related NM standard, including essential content not specified in the NM standard.

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1.NBT.6	6. Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90 (positive or zero differences), 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 and explain the reasoning used.					N	No grade-appropriate NM standards address the content of this CCSS standard.
Grade 1: MD Measure lengths indirectly and by iterating length units.							
1.MD.1	1. Order three objects by length; compare the lengths of two objects indirectly by using a third object.			1.M.1.1.a		P	The CCSS standard addresses higher level content than the related NM standard.
1.MD.2	2. Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. <i>Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.</i>			1.M.2.1		F	While the related NM standard covers the essential content contained in the CCSS, the NM standard does not specify some of the details listed in the CCSS.

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Grade 1: MD Tell and write time.							
1.MD.3	3. Tell and write time in hours and half-hours using analog and digital clocks.			1.M.1.2		F	NM.K.M.1.4 addresses telling time to the hour.
Grade 1: MD Represent and interpret data.							
1.MD.4	4. Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.			1.D.1.1.c 1.D.1.1.e 1.D.2.1.a 1.d.2.1.c		P	The CCSS standard is much more specific than the related NM standards, including essential content not specified in the NM standards.
Grade 1: G Reason with shapes and their attributes.							
1.G.1	1. Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.			1.G.1.1.a		P	The CCSS standard is much more specific than the related NM standard, including essential content not specified in the NM standard.

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1.G.2	2. Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape. ⁴		⁴ Students do not need to learn formal names such as "right rectangular prism."	1.G.4.1 1.G.4.2		P	The CCSS standard is much more specific than the related NM standards, including essential content not specified in the NM standards.
1.G.3	3. Partition circles and rectangles into two and four equal shares, describe the shares using the words <i>halves</i> , <i>fourths</i> , and <i>quarters</i> , and use the phrases <i>half of</i> , <i>fourth of</i> , and <i>quarter of</i> . Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares.					N	No grade-appropriate NM standards address the content of this CCSS standard. NM.2.N.1.2.d addresses how many parts make a whole using equal fractional parts. NM.3.N.1.5 addresses using visual models to recognize commonly used fractions.

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Grade 2: OA Represent and solve problems involving addition and subtraction.							
2.OA.1	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. ¹		¹ See Glossary, Table 1.	2.A.1.3 2.N.2.1 2.N.2.2 2.A.2.3 2.A.2.4 2.A.3.1		P	The CCSS standard is much more specific than the related NM standards, including essential content not specified in the NM standards. NM.2.A.2.3 does not address two-step problems.
Grade 2: OA Add and subtract within 20.							
2.OA.2	2. Fluently add and subtract within 20 using mental strategies. ² By end of Grade 2, know from memory all sums of two one-digit numbers.		² See standard 1.OA.6 for a list of mental strategies.	2.N.3.4		P	The related NM standard does not describe complete coverage of the CCSS standard. The NM standard does not require knowing from memory all sums of two one-digit numbers.
Grade 2: OA Work with equal groups of objects to gain foundations for multiplication.							
2.OA.3	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.			2.N.1.1.c		P	The CCSS standard is much more specific than the related NM standards, including essential content not specified in the NM standards. NM.2.N.1.1.c does not address writing an equation to express an even number as a sum of two equal addends. NM.1.N.1.1.c addresses counting by 2s.

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2.OA.4	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.G.2.5 2.G.4.4 2.A.2.1		F	While the related NM standards cover the essential content contained in the CCSS, the NM standards do not specify some of the details listed in the CCSS.
Grade 2: NBT Understand place value.							
2.NBT.1a	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:	a. 100 can be thought of as a bundle of ten tens — called a “hundred.”		2.N.1.1.a		F	While the related NM standard covers the essential content contained in the CCSS, the NM standard does not specify some of the details listed in the CCSS. NM.2.N.1.1.a does not specifically address the special cases listed in the CCS standard.
2.NBT.1b		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).					
2.NBT.2	2. Count within 1000; skip-count by 5s, 10s, and 100s.			2.N.1.2.a 2.N.1.2.b 2.N.3.5		P	The related NM standards do not describe complete coverage of the CCSS standard. NM.1.A.1.2 addresses skip counting up to 100 by 5s and 10s. NM.2.N.3.5 does not address skip counting by 100s. NM.3.N.1.2 addresses skip counting to 1,000.
2.NBT.3	3. Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.			2.N.1.1.a		P	The CCSS standard is much more specific than the related NM standard, including essential content (expanded form) not specified in the NM standard.

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2.NBT.4	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.			2.N.1.1.d		P	The CCSS standard addresses higher level content than the related NM standard. NM.3.N.1.1.a addresses comparing and ordering numbers up to 1,000.
Grade 2: NBT Use place value understanding and properties of operations to add and subtract.							
2.NBT.5	5. Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.			2.N.3.1		F	While the related NM standard covers the essential content contained in the CCSS, the NM standard does not specify some of the details listed in the CCSS. NM.3.A.2.2 addresses the commutative and associative properties of addition and multiplication.
2.NBT.6	6. Add up to four two-digit numbers using strategies based on place value and properties of operations.			2.N.2.1		P	The related NM standard does not describe complete coverage of the CCSS standard. NM.2.N.2.1 does not specifically address adding up to four two-digit numbers. NM.3.A.2.2 addresses the commutative and associative properties of addition and multiplication.

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2.NBT.7	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.			2.N.2.1 2.N.2.2 2.N.2.3		F	While the related NM standards cover the essential content contained in the CCSS, the NM standards do not specify some of the details listed in the CCSS. 1.N.1.1.f addresses decomposing and composing numbers using manipulatives to construct equivalent representations of the same number.
2.NBT.8	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.N.3.4		P	The CCSS standard is much more specific than the related NM standard, including essential content not specified in the NM standard.
2.NBT.9	9. Explain why addition and subtraction strategies work, using place value and the properties of operations. ³		³ Explanations may be supported by drawings or objects.	2.N.3.1		P	The CCSS standard is much more specific than the related NM standard, including essential content not specified in the NM standard. NM.3.A.2.2 addresses using the commutative and associative properties of addition.
Grade 2: MD Measure and estimate lengths in standard units.							
2.MD.1	1. Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.			2.M.1.6		F	

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Common Core State Standard							
CCSS Standard ID	Number	Letter	CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
2.MD.2	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.			2.M.2.2		F	While the related NM standard covers the essential content contained in the CCSS, the NM standard does not specify some of the details listed in the CCSS.
2.MD.3	3. Estimate lengths using units of inches, feet, centimeters, and meters.			2.M.2.3		F	While the related NM standard covers the essential content contained in the CCSS, the NM standard does not specify some of the details listed in the CCSS.
2.MD.4	4. Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.			2.M.1.2 2.M.1.3		F	While the related NM standards cover the essential content contained in the CCSS, the NM standards do not specify some of the details listed in the CCSS.
Grade 2: MD Relate addition and subtraction to length.							
2.MD.5	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.				3.M.2.3	P	The CCSS standard is much more specific than the related NM standard, including essential content not specified in the NM standard.

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CCSS Standard ID	Common Core State Standard		CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
	Number	Letter					
2.MD.6	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.					N	No grade-appropriate NM standards address the content of this CCSS standard. NM.2.N.1.1.a addresses using models, but does not specifically address using a number line.
Grade 2: MD Work with time and money.							
2.MD.7	7. Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.			2.M.1.7		P	While the related NM standard covers the essential content contained in the CCSS, the NM standard does not specify some of the details listed in the CCSS. NM.2.M.17 addresses telling time to the nearest quarter hour and NM.3.M.1.3 addresses telling time to the nearest minute.
2.MD.8	8. Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using \$ and ¢ symbols appropriately. <i>Example: If you have 2 dimes and 3 pennies, how many cents do you have?</i>			2.N.3.2 2.M.1.4		F	While the related NM standards cover the essential content contained in the CCSS, the NM standards do not specify some of the details listed in the CCSS.

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Common Core State Standard							
CCSS Standard ID	Number	Letter	CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
Grade 2: MD Represent and interpret data.							
2.MD.9	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.M.1.3		P	While the related NM standard covers the essential content contained in the CCSS, the NM standard does not specify some of the details listed in the CCSS. NM.3.D.1.2 addresses representing data by using a line plot.
2.MD.10	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 ⁴ using information presented in a bar graph.		⁴ See Glossary, Table 1.	2.A.3.3		P	The related NM standard does not describe complete coverage of the CCSS standard. NM.3.D.1.2 addresses representing data by using a line plot.
Grade 2: G Reason with shapes and their attributes.							
2.G.1	1. Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. ⁵ Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.		⁵ Sizes are compared directly or visually, not compared by measuring.	2.G.1.1.a		P	The related NM standard does not describe complete coverage of the CCSS standards. NM.3.G.1.1.a addresses pentagons and hexagons.
2.G.2	2. Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.			2.G.2.5 2.G.4.4		F	

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Common Core State Standard							
CCSS Standard ID	Number	Letter	CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
2.G.3	3. Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words <i>halves, thirds, half of, a third of, etc.</i> , and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.			2.N.1.2.d		P	The CCSS standard addresses higher level content than the related NM standard.
Grade 3: OA Represent and solve problems involving multiplication and division.							
3.OA.1	1. Interpret products of whole numbers, e.g., interpret 5×7 as the total number of objects in 5 groups of 7 objects each. <i>For example, describe a context in which a total number of objects can be expressed as 5×7.</i>			3.N.2.4		F	

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CCSS Standard ID	Common Core State Standard		CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
	Number	Letter					
3.OA.2	2. Interpret whole-number quotients of whole numbers, e.g., interpret $56 \div 8$ as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. <i>For example, describe a context in which a number of shares or a number of groups can be expressed as $56 \div 8$.</i>			3.N.2.5 3.N.2.6		F	While the related NM standards cover the essential content contained in the CCSS, the NM standards do not specify some of the details listed in the CCSS.
3.OA.3	3. Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. ¹		¹ See Glossary, Table 2.	3.N.2.1 3.N.2.3 3.A.3.3 3.G.4.4		F	NM.2.G.2.5 addresses making and drawing rectangular arrays of squares.

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Common Core State Standard							
CCSS Standard ID	Number	Letter	CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
3.OA.4	4. Determine the unknown whole number in a multiplication or division equation relating three whole numbers. <i>For example, determine the unknown number that makes the equation true in each of the equations $8 \times ? = 48$, $5 = \div 3$, $6 \times 6 = ?$.</i>			3.A.1.1 3.A.2.1 3.A.3.3		F	NM.4.A.2.4 addresses determining the value of variables in simple equations.
Grade 3: OA Understand properties of multiplication and the relationship between multiplication and division.							
3.OA.5	5. Apply properties of operations as strategies to multiply and divide. ² <i>Examples: If $6 \times 4 = 24$ is known, then $4 \times 6 = 24$ is also known. (Commutative property of multiplication.) $3 \times 5 \times 2$ can be found by $3 \times 5 = 15$, then $15 \times 2 = 30$, or by $5 \times 2 = 10$, then $3 \times 10 = 30$. (Associative property of multiplication.) Knowing that $8 \times 5 = 40$ and $8 \times 2 = 16$, one can find 8×7 as $8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56$. (Distributive property.)</i>		² Students need not use formal terms for these properties.	3.N.3.1 3.A.1.5 3.A.2.2 3.A.2.3		F	

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Common Core State Standard							
CCSS Standard ID	Number	Letter	CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
3.OA.6	6. Understand division as an unknown-factor problem. <i>For example, find $32 \div 8$ by finding the number that makes 32 when multiplied by 8.</i>			3.N.2.6		F	While the related NM standard covers the essential content contained in the CCSS, the NM standard does not specify some of the details listed in the CCSS.
Grade 3: OA Multiply and divide within 100.							
3.OA.7	7. Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.			3.N.2.6 3.A.2.2		P	The related NM standards do not describe complete coverage of the CCSS standard. NM.3.N.2.6, NM.3.A.2.2 do not address knowing from memory all products of two one-digit numbers.
Grade 3: OA Solve problems involving the four operations, and identify and explain patterns in arithmetic.							
3.OA.8	8. Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. ³		³ This standard is limited to problems posed with whole numbers and having whole-number answers; students should know how to perform operations in the conventional order when there are no parentheses to specify a particular order (Order of Operations).	3.N.2.7 3.N.3.4 3.A.3.3		P	While the related NM standards cover the essential content contained in the CCSS, the NM standards do not specify some of the details listed in the CCSS. 4.N.3.3 includes rounding and regrouping strategies. 1.N.3.4 addresses estimation strategies involving addition and subtraction.

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CCSS Standard ID	Common Core State Standard		CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
	Number	Letter					
3.OA.9	9. Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. <i>For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.</i>			3.A.1.6 3.A.2.3		F	While the related NM standards cover the essential content contained in the CCSS, the NM standards do not specify some of the details listed in the CCSS.
Grade 3: NBT Use place value understanding and properties of operations to perform multi-digit arithmetic.4							
3.NBT.1	1. Use place value understanding to round whole numbers to the nearest 10 or 100.		⁴ A range of algorithms may be used.	3.N.1.1.c 3.N.3.4		P	The related NM standards do not describe complete coverage of the CCSS standard. Round whole numbers to the nearest 10 or 100 is not addressed in NM standards.
3.NBT.2	2. Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.		⁴ A range of algorithms may be used.	3.N.2.2 3.A.2.2		F	While the related NM standards cover the essential content contained in the CCSS, the NM standards do not specify some of the details listed in the CCSS.
3.NBT.3	3. Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., 9×80 , 5×60) using strategies based on place value and properties of operations.		⁴ A range of algorithms may be used.	3.N.3.1 3.N.3.3 3.A.2.3		F	While the related NM standards cover the essential content contained in the CCSS, the NM standards do not specify some of the details listed in the CCSS.

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CCSS Standard ID	Common Core State Standard		CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
	Number	Letter					
	Grade 3: NF Develop understanding of fractions as numbers.						
3.NF.1	1. Understand a fraction $1/b$ as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size $1/b$.		⁵ Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.	3.N.1.5 3.N.1.6		F	While the related NM standards cover the essential content contained in the CCSS, the NM standards do not specify some of the details listed in the CCSS.
3.NF.2a	2. Understand a fraction as a number on the number line; represent fractions on a number line diagram.	a. Represent a fraction $1/b$ on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into b equal parts. Recognize that each part has size $1/b$ and that the endpoint of the part based at 0 locates the number $1/b$ on the number line.	⁵ Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.	3.N.1.6		F	While the related NM standard covers the essential content contained in the CCSS, the NM standard does not specify some of the details listed in the CCSS.
3.NF.2b		b. Represent a fraction a/b on a number line diagram by marking off a lengths $1/b$ from 0. Recognize that the resulting interval has size a/b and that its endpoint locates the number a/b on the number line.	⁵ Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.				
3.NF.3a	3. Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.	a. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.	⁵ Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.	3.N.1.5		P	The related NM standard does not describe complete coverage of the CCSS standard. NM.4.N.1.2.c addresses ordering fractions.

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CCSS Standard ID	Number	Letter	CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
3.NF.3b		b. Recognize and generate simple equivalent fractions, e.g., $1/2 = 2/4$, $4/6 = 2/3$. Explain why the fractions are equivalent, e.g., by using a visual fraction model.	⁵ Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.				
3.NF.3c		c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. <i>Examples: Express 3 in the form $3 = 3/1$; recognize that $6/1 = 6$; locate $4/4$ and 1 at the same point of a number line diagram.</i>	⁵ Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.				
3.NF.3d		d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.	⁵ Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.				
Grade 3: MD Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.							
3.MD.1	1. Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.			3.M.1.3		P	The CCSS standard addresses higher level content than the related NM standard.

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Common Core State Standard							
CCSS Standard ID	Number	Letter	CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
3.MD.2	2. Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). ⁶ Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem. ⁷		⁶ Excludes compound units such as cm ³ and finding the geometric volume of a container. ⁷ Excludes multiplicative comparison problems (problems involving notions of "times as much"; see Glossary, Table 2).	3.M.1.2 3.M.1.5 3.M.2.2		P	The CCSS standard addresses higher level content than the related NM standards.
Grade 3: MD Represent and interpret data.							
3.MD.3	3. Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs. <i>For example, draw a bar graph in which each square in the bar graph might represent 5 pets.</i>			3.D.1.2 3.D.3.1		P	The CCSS standard is much more specific than the related NM standards, including essential content not specified in the NM standards. Picture graphs are mentioned in NM.2.D.1.2.

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Common Core State Standard							
CCSS Standard ID	Number	Letter	CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
3.MD.4	4. Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters.			3.M.1.2 3.M.2.3 3.D.1.2		F	While the related NM standards cover the essential content contained in the CCSS, the NM standards do not specify some of the details listed in the CCSS.
Grade 3: MD Geometric measurement: understand concepts of area and relate area to multiplication and to addition.							
3.MD.5a	5. Recognize area as an attribute of plane figures and understand concepts of area measurement.	a. A square with side length 1 unit, called “a unit square,” is said to have “one square unit” of area, and can be used to measure area.		3.G.4.4 3.M.2.1		F	While the related NM standards cover the essential content contained in the CCSS, the NM standards do not specify some of the details listed in the CCSS. NM.4.M.22 includes additional plane figures, triangles, and parallelograms.
3.MD.5b		b. A plane figure which can be covered without gaps or overlaps by n unit squares is said to have an area of n square units.					
3.MD.6	6. Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).			3.M.2.1		P	The CCSS standard is much more specific than the related NM standard, including essential content not specified in the NM standard.
3.MD.7a	7. Relate area to the operations of multiplication and addition.	a. Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths.		3.G.4.4 3.M.2.1 3.A.2.3		P	The CCSS standard addresses higher level content than the related NM standards.

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Common Core State Standard							
CCSS Standard ID	Number	Letter	CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
3.MD.7b		b. Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.					
3.MD.7c		c. Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and $b + c$ is the sum of $a \times b$ and $a \times c$. Use area models to represent the distributive property in mathematical reasoning.					
3.MD.7d		d. Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.					
Grade 3: MD Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.							
3.MD.8	8. Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.				4.G.4.3.a 4.G.4.3.b 4.G.4.3.c	F	

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Common Core State Standard							
CCSS Standard ID	Number	Letter	CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
Grade 3: G Reason with shapes and their attributes.							
3.G.1	1. Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.			3.G.1.1.c		P	The CCSS standard is much more specific than the related NM standard, including essential content not specified in the NM standard.
3.G.2	2. Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. <i>For example, partition a shape into 4 parts with equal area, and describe the area of each part as 1/4 of the area of the shape.</i>					N	No grade-appropriate NM standards address the content of this CCSS standard.

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CCSS Standard ID	Common Core State Standard		CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
	Number	Letter					
	Grade 4: OA Use the four operations with whole numbers to solve problems.						
4.OA.1	1. Interpret a multiplication equation as a comparison, e.g., interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.					N	No grade-appropriate NM standards address the content of this CCSS standard.
4.OA.2	2. Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison. ¹		¹ See Glossary, Table 2.			N	No grade-appropriate NM standards address the content of this CCSS standard.

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		Common Core State Standard					
CCSS Standard ID	Number	Letter	CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
4.OA.3	3. Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.			4.A.1.3 4.A.1.4.a 4.A.2.1 4.N.2.2 4.N.3.3 4.A.2.3		F	While the related NM standards cover the essential content contained in the CCSS, the NM standards do not specify some of the details listed in the CCSS. NM.5.N.2.1 addresses remainders in division.
		Grade 4: OA Gain familiarity with factors and multiples.					
4.OA.4	4. Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.			4.N.1.4		P	The related NM standard does not describe complete coverage of the CCSS standard. NM.4.N.1.4 does not address prime and composite numbers. NM.5.N.1.6 addresses prime and composite but limits range to 50.

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Common Core State Standard							
CCSS Standard ID	Number	Letter	CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
Grade 4: OA Generate and analyze patterns.							
4.OA.5	5. Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. <i>For example, given the rule “Add 3” and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.</i>			4.A.1.1 4.A.1.2 4.G.4.2		F	The CCSS standard is much more specific than the related NM standards, including essential content not specified in the NM standards.
Grade 4: NBT Generalize place value understanding for multi-digit whole numbers.							
4.NBT.1	1. Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. <i>For example, recognize that $700 \div 70 = 10$ by applying concepts of place value and division.</i>		² Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.	4.N.1.1.a		P	The related NM standard does not describe complete coverage of the CCSS standard. NM.4.N.1.1 limits numbers up to 100,000.

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Common Core State Standard							
CCSS Standard ID	Number	Letter	CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
4.NBT.2	2. Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons.		² Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.	4.N.1.1.a		P	The CCSS standard addresses higher level content than the related NM standard. NM.4.N.1.1.a does not specifically address expanded form.
4.NBT.3	3. Use place value understanding to round multi-digit whole numbers to any place.		² Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.	4.N.1.1.a 4.N.3.3		F	While the related NM standards cover the essential content contained in the CCSS, the NM standards do not specify some of the details listed in the CCSS.
Grade 4: NBT Use place value understanding and properties of operations to perform multi-digit arithmetic.							
4.NBT.4	4. Fluently add and subtract multi-digit whole numbers using the standard algorithm.		² Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.	4.N.3.2		P	The related NM standard does not describe complete coverage of the CCSS standard. NM.4.N.3.2 limits operations to two-digit whole numbers.
4.NBT.5	5. Multiply a whole number of up to four digits by a one-digit whole number, and multiply two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.		² Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.	4.N.2.1.b 4.N.2.4 4.N.2.5 4.N.3.2 4.G.4.3.c		F	While the related NM standards cover the essential content contained in the CCSS, the NM standards do not specify some of the details listed in the CCSS.

New Mexico Mathematics Standards Alignment to Common Core State Standards for Mathematics

Common Core State Standard							
CCSS Standard ID	Number	Letter	CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
4.NBT.6	6. Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.		² Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.	4.N.2.1.b 4.N.3.1 4.N.2.2 4.G.4.3.c		F	While the related NM standards cover the essential content contained in the CCSS, the NM standards do not specify some of the details listed in the CCSS.
Grade 4: NF Extend understanding of fraction equivalence and ordering.							
4.NF.1	1. Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.		³ Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.	4.N.1.2.a 4.N.1.2.c		F	While the related NM standards cover the essential content contained in the CCSS, the NM standards do not specify some of the details listed in the CCSS.

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Common Core State Standard							
CCSS Standard ID	Number	Letter	CCSS Note	NM On-grade Standard(s)	NM Off-grade Standard(s)	Degree of CCSS Coverage (F/P/N)	Notes
4.NF.2	2. Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as $\frac{1}{2}$. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.		³ Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.	4.N.1.2.a 4.N.1.2.c		P	While the related NM standards cover the essential content contained in the CCSS, the NM standards do not specify some of the details listed in the CCSS. NM.5.A.2.3 addresses the use of the symbols $>$, $=$, $<$.
Grade 4: NF Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.							
4.NF.3a	3. Understand a fraction $\frac{a}{b}$ with $a > 1$ as a sum of fractions $\frac{1}{b}$.	a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.	³ Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.		5.N.2.3 5.N.2.8	P	The CCSS standard is much more specific than the related NM standards, including essential content not specified in the NM standards.
4.NF.3b		b. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. <i>Examples:</i> $\frac{3}{8} = \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$; $\frac{3}{8} = \frac{1}{8} + \frac{2}{8}$; $2\frac{1}{8} = 1 + 1 + \frac{1}{8} = \frac{8}{8} + \frac{8}{8} + \frac{1}{8}$.	³ Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.				

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	Number	Letter					
4.NF.3c		c. Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.	³ Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.				
4.NF.3d		d. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.	³ Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.				
4.NF.4a	4. Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.	a. Understand a fraction a/b as a multiple of $1/b$. <i>For example, use a visual fraction model to represent $5/4$ as the product $5 \times (1/4)$, recording the conclusion by the equation $5/4 = 5 \times (1/4)$.</i>	³ Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.		6.N.2.5.d	F	NM.6.N.2.5.d is the first mention of multiplication of fractions in NM standards.
4.NF.4b		b. Understand a multiple of a/b as a multiple of $1/b$, and use this understanding to multiply a fraction by a whole number. <i>For example, use a visual fraction model to express $3 \times (2/5)$ as $6 \times (1/5)$, recognizing this product as $6/5$. (In general, $n \times (a/b) = (n \times a)/b$.)</i>	³ Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.				

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4.NF.4c		c. Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. <i>For example, if each person at a party will eat 3/8 of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?</i>	³ Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.				
Grade 4: NF Understand decimal notation for fractions, and compare decimal fractions.							
4.NF.5	5. Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. ⁴ <i>For example, express 3/10 as 30/100, and add 3/10 + 4/100 = 34/100.</i>		³ Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100. ⁴ Students who can generate equivalent fractions can develop strategies for adding fractions with unlike denominators in general. But addition and subtraction with unlike denominators in general is not a requirement at this grade.			N	No grade-appropriate NM standards address the content of this CCSS standard.

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CCSS Standard ID	Common Core State Standard		CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
	Number	Letter					
4.NF.6	6. Use decimal notation for fractions with denominators 10 or 100. <i>For example, rewrite 0.62 as 62/100; describe a length as 0.62 meters; locate 0.62 on a number line diagram.</i>		³ Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.		5.N.1.2 5.N.1.5 5.N.2.6	F	While the related NM standards cover the essential content contained in the CCSS, the NM standards do not specify some of the details listed in the CCSS.
4.NF.7	7. Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual model.		³ Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.		5.N.1.1.c	P	The CCSS standard is much more specific than the related NM standard, including essential content not specified in the NM standard.

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	Number	Letter					
	Grade 4: MD Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.						
4.MD.1	1. Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. <i>For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36), ...</i>			4.M.1.6		F	While the related NM standard covers the essential content contained in the CCSS, the NM standard does not specify some of the details listed in the CCSS.

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4.MD.2	2. Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.			4.M.2.3 4.N.2.3		P	The CCSS standard is much more specific than the related NM standards, including essential content not specified in the NM standards.
4.MD.3	3. Apply the area and perimeter formulas for rectangles in real world and mathematical problems. <i>For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.</i>			4.G.4.3.c 4.M.1.5 4.A.2.5 4.A.3.3		F	While the related NM standards cover the essential content contained in the CCSS, the NM standards do not specify some of the details listed in the CCSS.

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Common Core State Standard							
CCSS Standard ID	Number	Letter	CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
Grade 4: MD Represent and interpret data.							
4.MD.4	4. Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Solve problems involving addition and subtraction of fractions by using information presented in line plots. <i>For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.</i>			4.D.1.2		F	While the related NM standard covers the essential content contained in the CCSS, the NM standard does not specify some of the details listed in the CCSS.
Grade 4: MD Geometric measurement: understand concepts of angle and measure angles.							
4.MD.5a	5. Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement:	a. An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through $\frac{1}{360}$ of a circle is called a “one-degree angle,” and can be used to measure angles.		4.M.1.1 4.M.2.4		P	The CCSS standard is much more specific than the related NM standards, including essential content not specified in the NM standards.
4.MD.5b		b. An angle that turns through n one-degree angles is said to have an angle measure of n degrees.					
4.MD.6	6. Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.			4.M.2.6		F	While the related NM standard covers the essential content contained in the CCSS, the NM standard does not specify some of the details listed in the CCSS.

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4.MD.7	7. Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.					N	No grade-appropriate NM standards address the content of this CCSS standard.
Grade 4: G Draw and identify lines and angles, and classify shapes by properties of their lines and angles.							
4.G.1	1. Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.				6.G.1.1.a 6.G.1.2 6.G.1.6	F	While the related NM standards cover the essential content contained in the CCSS, the NM standards do not specify some of the details listed in the CCSS.
4.G.2	2. Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.			4.G.1.2.a		P	While the related NM standard covers the essential content contained in the CCSS, the NM standard does not specify some of the details listed in the CCSS. NM.3.G.1.1.d addresses identifying right angles.

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4.G.3	3. Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.			4.G.3.1		F	While the related NM standard covers the essential content contained in the CCSS, the NM standard does not specify some of the details listed in the CCSS. NM 3.G.1.1.b addresses identifying lines of symmetry in two-dimensional shapes.
Grade 5: OA Write and interpret numerical expressions.							
5.OA.1	1. Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.			5.N.3.6		F	While the related NM standard covers the essential content contained in the CCSS, the NM standard does not specify some of the details listed in the CCSS.
5.OA.2	2. Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. <i>For example, express the calculation “add 8 and 7, then multiply by 2” as $2 \times (8 + 7)$. Recognize that $3 \times (18932 + 921)$ is three times as large as $18932 + 921$, without having to calculate the indicated sum or product.</i>					N	No grade-appropriate NM standards address the content of this CCSS standard.

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	Number	Letter					
	Grade 5: OA Analyze patterns and relationships.						
5.OA.3	3. Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. <i>For example, given the rule “Add 3” and the starting number 0, and given the rule “Add 6” and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so.</i>			5.A.1.1 5.A.1.2 5.A.1.3		P	The related NM standards do not describe complete coverage of the CCSS standard, which specifies comparing two patterns and the relationship between corresponding output given the same input.
	Grade 5: NBT Understand the place value system.						
5.NBT.1	1. Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.			5.N.1.2 5.N.1.3		P	The CCSS standard is much more specific than the related NM standards, including essential content not specified in the NM standards.

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	Number	Letter					
5.NBT.2	2. Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.					N	No grade-appropriate NM standards address the content of this CCSS standard.
5.NBT.3a	3. Read, write, and compare decimals to thousandths.	a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., $347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (1/10) + 9 \times (1/100) + 2 \times (1/1000)$.		5.N.1.1.c 5.N.1.2 5.N.1.3 5.A.2.3		P	The CCSS standard is much more specific than the related NM standards, including essential content not specified in the NM standards.
5.NBT.3b		b. Compare two decimals to thousandths based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons.					
5.NBT.4	4. Use place value understanding to round decimals to any place.					N	No grade-appropriate NM standards address the content of this CCSS standard.
Grade 5: NBT Perform operations with multi-digit whole numbers and with decimals to hundredths.							
5.NBT.5	5. Fluently multiply multi-digit whole numbers using the standard algorithm.				4.N.2.1.b	P	The related NM standard does not describe complete coverage of the CCSS standard, which does not limit one factor to two digits.

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	Number	Letter					
5.NBT.6	6. Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.			5.N.2.7		F	While the related NM standard covers the essential content contained in the CCSS, the NM standard does not specify some of the details listed in the CCSS.
5.NBT.7	7. Add, subtract, multiply, and divide decimals to hundredths, 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 and explain the reasoning used.			5.N.2.2 5.N.3.2 5.A.3.1 5.A.3.2.c		P	The related NM standards do not describe complete coverage of the CCSS standard, which includes multiplication and division with decimals and specifies relating the strategy to a written method, and explaining the reasoning used.

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CCSS Standard ID	Common Core State Standard		CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
	Number	Letter					
	Grade 5: NF Use equivalent fractions as a strategy to add and subtract fractions.						
5.NF.1	1. Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. <i>For example, $2/3 + 5/4 = 8/12 + 15/12 = 23/12$. (In general, $a/b + c/d = (ad + bc)/bd$.)</i>			5.N.2.3 5.N.2.9		P	The CCSS standard addresses higher level content than the related NM standards.
5.NF.2	2. Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. <i>For example, recognize an incorrect result $2/5 + 1/2 = 3/7$, by observing that $3/7 < 1/2$.</i>			5.N.2.3 5.N.2.8 5.N.3.3 5.A.3.2.b 5.A.3.2.c 5.A.3.2.e		F	While the related NM standards cover the essential content contained in the CCSS, the NM standards do not specify some of the details listed in the CCSS.

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CCSS Standard ID	Number	Letter	CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
Grade 5: NF Apply and extend previous understandings of multiplication and division to multiply and divide fractions.							
5.NF.3	3. Interpret a fraction as division of the numerator by the denominator ($a/b = a \div b$). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. <i>For example, interpret $3/4$ as the result of dividing 3 by 4, noting that $3/4$ multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size $3/4$. If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?</i>			5.N.2.1 5.N.2.7 5.A.3.2.c		F	While the related NM standards cover the essential content contained in the CCSS, the NM standards do not specify some of the details listed in the CCSS.

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	Number	Letter					
5.NF.4a	4. Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.	a. Interpret the product $(a/b) \times q$ as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$. For example, use a visual fraction model to show $(2/3) \times 4 = 8/3$, and create a story context for this equation. Do the same with $(2/3) \times (4/5) = 8/15$. (In general, $(a/b) \times (c/d) = ac/bd$.)			6.N.2.5.d 6.A.3.1	P	The CCSS standard is much more specific than the related NM standards, including essential content not specified in the NM standards.
5.NF.4b		b. Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.					
5.NF.5a	5. Interpret multiplication as scaling (resizing), by:	a. Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.				N	No grade-appropriate NM standards address the content of this CCSS standard.

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5.NF.5b		b. Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $a/b = (n \times a)/(n \times b)$ to the effect of multiplying a/b by 1.					
5.NF.6	6. Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.				6.N.2.5.d 6.N.3.7 6.A.3.1 6.A.3.2.b	F	
5.NF.7a	7. Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions. ¹	a. Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. <i>For example, create a story context for $(1/3) \div 4$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $(1/3) \div 4 = 1/12$ because $(1/12) \times 4 = 1/3$.</i>	¹ Students able to multiply fractions in general can develop strategies to divide fractions in general, by reasoning about the relationship between multiplication and division. But division of a fraction by a fraction is not a requirement at this grade.	5.N.2.5 5.N.3.5 5.A.3.1 5.A.3.2.c 5.A.3.2.e		P	The related NM standards do not describe complete coverage of the CCSS standard, which specifies unit fractions as dividends and divisors in division problems involving whole numbers.

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CCSS Standard ID	Number	Letter	CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
5.NF.7b	7. Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.*	b. Interpret division of a whole number by a unit fraction, and compute such quotients. <i>For example, create a story context for $4 \div (1/5)$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $4 \div (1/5) = 20$ because $20 \times (1/5) = 4$.</i>					
5.NF.7c		c. Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. <i>For example, how much chocolate will each person get if 3 people share $1/2$ lb of chocolate equally? How many $1/3$-cup servings are in 2 cups of raisins?</i>					
Grade 5: MD Convert like measurement units within a given measurement system.							
5.MD.1	1. Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.			5.M.1.2 5.M.1.3 5.M.1.4		F	While the related NM standards cover the essential content contained in the CCSS, the NM standards do not specify some of the details listed in the CCSS.

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CCSS Standard ID	Number	Letter	CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
Grade 5: MD Represent and interpret data.							
5.MD.2	2. Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Use operations on fractions for this grade to solve problems involving information presented in line plots. <i>For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.</i>			5.D.1.1 5.D.2.3		P	The related NM standards do not describe complete coverage of the CCSS standard, which specifies a line plot with measurement data, the use of unit fractions, and operations with fractions.
Grade 5: MD Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.							
5.MD.3a	3. Recognize volume as an attribute of solid figures and understand concepts of volume measurement.	a. A cube with side length 1 unit, called a “unit cube,” is said to have “one cubic unit” of volume, and can be used to measure volume.				N	No grade-appropriate NM standard(s) address the content of this CCSS standard.
5.MD.3b		b. A solid figure which can be packed without gaps or overlaps using n unit cubes is said to have a volume of n cubic units.					
5.MD.4	4. Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.			5.M.1.1 5.M.1.2		F	While the related NM standards cover the essential content contained in the CCSS, the NM standards do not specify some of the details listed in the CCSS.

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CCSS Standard ID	Common Core State Standard		CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
	Number	Letter					
5.MD.5a	5. Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.	a. Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication.			7.M.1.2 8.M.1.1 8.M.2.4 8.M.2.6	P	The CCSS standard is much more specific than the related NM standards, including essential content not specified in the NM standards.
5.MD.5b		b. Apply the formulas $V = l \times w \times h$ and $V = b \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real world and mathematical problems.					
5.MD.5c		c. Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems.					

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CCSS Standard ID	Common Core State Standard		CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
	Number	Letter					
	Grade 5: G Graph points on the coordinate plane to solve real-world and mathematical problems.						
5.G.1	1. Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x -axis and x -coordinate, y -axis and y -coordinate).				4.G.2.2	P	The CCSS standard is much more specific than the related NM standards, including essential content not specified in the NM standards.
5.G.2	2. Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.				4.G.2.2 6.G.2.1	P	The CCSS standard is much more specific than the related NM standards, including essential content not specified in the NM standards.

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CCSS Standard ID	Common Core State Standard		CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
	Number	Letter					
Grade 5: G Classify two-dimensional figures into categories based on their properties.							
5.G.3	3. Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. <i>For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles.</i>					N	No grade-appropriate NM standard(s) address the content of this CCSS standard.
5.G.4	4. Classify two-dimensional figures in a hierarchy based on properties.			5.G.1.1		F	
Grade 6: RP Understand ratio concepts and use ratio reasoning to solve problems.							
6.RP.1	1. Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. <i>For example, "The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak." "For every vote candidate A received, candidate C received nearly three votes."</i>			6.N.3.6		F	While the related NM standard covers the essential content contained in the CCSS, the NM standard does not specify some of the details listed in the CCSS.

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CCSS Standard ID	Common Core State Standard		CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
	Number	Letter					
6.RP.2	2. Understand the concept of a unit rate a/b associated with a ratio $a:b$ with $b \neq 0$, and use rate language in the context of a ratio relationship. <i>For example, "This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is $3/4$ cup of flour for each cup of sugar." "We paid \$75 for 15 hamburgers, which is a rate of \$5 per hamburger."</i> ¹		¹ Expectations for unit rates in this grade are limited to non-complex fractions.	6.N.3.6		F	While the related NM standard covers the essential content contained in the CCSS, the NM standard does not specify some of the details listed in the CCSS. NM standards 4.A.3.1 and 4.A.4.1 also address this CCSS content.
6.RP.3a	3. Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.	a. Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.		6.N.1.2 6.N.2.3 6.N.2.4 6.N.3.6 6.A.1.1 6.A.1.2 6.A.1.4 6.A.2.1 6.A.3.2.d 6.A.4.2 6.A.4.4 6.M.1.1		P	The related NM standards do not describe complete coverage of the CCSS standard, which includes finding a percent of a number, finding the whole given a part and the percent, and manipulating and transforming units in a calculation.
6.RP.3b		b. Solve unit rate problems including those involving unit pricing and constant speed. <i>For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?</i>					

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Common Core State Standard							
CCSS Standard ID	Number	Letter	CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
6.RP.3c		c. Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent.					
6.RP.3d		d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.					
Grade 6: NS Apply and extend previous understandings of multiplication and division to divide fractions by fractions.							
6.NS.1	1. Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. <i>For example, create a story context for $(2/3) \div (3/4)$ and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that $(2/3) \div (3/4) = 8/9$ because $3/4$ of $8/9$ is $2/3$. (In general, $(a/b) \div (c/d) = ad/bc$.) How much chocolate will each person get if 3 people share $1/2$ lb of chocolate equally? How many $3/4$-cup servings are in $2/3$ of a cup of yogurt? How wide is a rectangular strip of land with length $3/4$ mi and area $1/2$ square mi?</i>			6.N.1.3 6.N.3.6 6.N.3.7 6.A.3.1 6.A.3.2.b		F	While the related NM standards cover the essential content contained in the CCSS, the NM standards do not specify some of the details listed in the CCSS.

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Common Core State Standard							
CCSS Standard ID	Number	Letter	CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
Grade 6: NS Compute fluently with multi-digit numbers and find common factors and multiples.							
6.NS.2	2. Fluently divide multi-digit numbers using the standard algorithm.			6.N.2.1 6.N.2.5.a		F	While the related NM standards cover the essential content contained in the CCSS, the NM standards do not specify some of the details listed in the CCSS.
6.NS.3	3. Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.			6.N.2.5.b		F	While the related NM standard covers the essential content contained in the CCSS, the NM standard does not specify some of the details listed in the CCSS.
6.NS.4	4. Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor. <i>For example, express $36 + 8$ as $4(9 + 2)$.</i>			6.N.1.4 6.N.2.6		F	

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	Number	Letter					
	Grade 6: NS Apply and extend previous understandings of numbers to the system of rational numbers.						
6.NS.5	5. Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.			6.N.1.3 6.N.1.5 6.N.3.4		P	The related NM standards do not describe complete coverage of the CCSS standard, which emphasizes understanding of opposite directions and values, and explaining the meaning of 0 in real-world context.
6.NS.6a	6. Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.	a. Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g., $-(-3) = 3$, and that 0 is its own opposite.		6.N.1.5 6.N.3.4 6.A.1.2 6.G.2.1		P	The related NM standards do not describe complete coverage of the CCSS standard, which emphasizes the role of the opposite sign and references reflections on the coordinate plane.
6.NS.6b		b. Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes.					

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CCSS Standard ID	Common Core State Standard		CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
	Number	Letter					
6.NS.6c		c. Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.					
6.NS.7a	7. Understand ordering and absolute value of rational numbers.	a. Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. <i>For example, interpret $-3 > -7$ as a statement that -3 is located to the right of -7 on a number line oriented from left to right.</i>		6.N.1.1 6.N.1.3 6.N.1.5 6.N.3.4 6.A.1.3 6.A.3.2.b		P	The related NM standards do not describe complete coverage of the CCSS standard, which emphasizes absolute value and allows use of negative numbers in real-world contexts.
6.NS.7b		b. Write, interpret, and explain statements of order for rational numbers in real-world contexts. <i>For example, write $-3\text{ }^{\circ}\text{C} > -7\text{ }^{\circ}\text{C}$ to express the fact that $-3\text{ }^{\circ}\text{C}$ is warmer than $-7\text{ }^{\circ}\text{C}$.</i>					
6.NS.7c		c. Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation. <i>For example, for an account balance of -30 dollars, write $-30 = 30$ to describe the size of the debt in dollars.</i>					

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		Common Core State Standard					
CCSS Standard ID	Number	Letter	CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
6.NS.7d		d. Distinguish comparisons of absolute value from statements about order. <i>For example, recognize that an account balance less than –30 dollars represents a debt greater than 30 dollars.</i>					
6.NS.8	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.			6.N.1.3 6.A.1.2		P	The related NM standards do not describe complete coverage of the CCSS standard, which emphasizes absolute value and its use for finding distance in the coordinate plane. NM standard 7.N.2.6.b also addresses the CCSS content.
Grade 6: EE Apply and extend previous understandings of arithmetic to algebraic expressions.							
6.EE.1	1. Write and evaluate numerical expressions involving whole-number exponents.			6.N.1.2 6.N.1.3		P	The CCSS standard is much broader than the related NM standards.

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	Number	Letter					
6.EE.2a	2. Write, read, and evaluate expressions in which letters stand for numbers.	a. Write expressions that record operations with numbers and with letters standing for numbers. <i>For example, express the calculation "Subtract y from 5" as $5 - y$.</i>			7.N.1.5 7.A.1.3 7.A.1.4 7.A.2.1.a 7.A.4.1 7.A.4.2 8.N.3.1 8.N.3.9 8.A.2.3	F	
6.EE.2b		b. Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. <i>For example, describe the expression $2(8 + 7)$ as a product of two factors; view $(8 + 7)$ as both a single entity and a sum of two terms.</i>					
6.EE.2c		c. Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). <i>For example, use the formulas $V = s^3$ and $A = 6s^2$ to find the volume and surface area of a cube with sides of length $s = 1/2$.</i>					

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CCSS Standard ID	Common Core State Standard		CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
	Number	Letter					
6.EE.3	3. Apply the properties of operations to generate equivalent expressions. <i>For example, apply the distributive property to the expression $3(2 + x)$ to produce the equivalent expression $6 + 3x$; apply the distributive property to the expression $24x + 18y$ to produce the equivalent expression $6(4x + 3y)$; apply properties of operations to $y + y + y$ to produce the equivalent expression $3y$.</i>				7.A.1.3 7.A.2.4 7.A.4.1 8.N.2.1 8.N.3.4	F	While the related NM standards cover the essential content contained in the CCSS, the NM standards do not specify some of the details listed in the CCSS.
6.EE.4	4. Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them). <i>For example, the expressions $y + y + y$ and $3y$ are equivalent because they name the same number regardless of which number y stands for.</i>				7.A.1.3 7.A.2.4	P	The related NM standards do not describe complete coverage of the CCSS standard, which specifies determining when expressions are equivalent rather than simplifying or generating an equivalent expression.

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CCSS Standard ID	Common Core State Standard		CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
	Number	Letter					
	Grade 6: EE Reason about and solve one-variable equations and inequalities.						
6.EE.5	5. Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.				7.A.1.3 7.A.1.4 7.A.2.1.a 7.A.2.1.b 7.A.2.2 7.A.2.3 7.A.2.4 7.A.4.4 8.A.2.2 8.A.2.3	P	The related NM standards do not describe complete coverage of the CCSS standard, which specifies demonstrating understanding of solving an equation or inequality as a process of determining which values of a given set make the equation or inequality true.
6.EE.6	6. Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.			6.A.1.3 6.A.2.2 6.A.2.4 6.A.3.2.b		F	While the related NM standards cover the essential content contained the CCSS, the NM standards do not specify some of the details listed in the CCSS.
6.EE.7	7. Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p , q and x are all nonnegative rational numbers.			6.A.1.1 6.A.1.3 6.A.2.1 6.A.2.3 6.A.2.4 6.A.3.2.b 6.A.4.1		P	The related NM standards do not describe complete coverage of the CCSS standard, which explicitly states solving real-world problems.

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	Number	Letter					
6.EE.8	8. Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams.			6.N.1.3 6.N.1.5 6.N.3.4 6.A.1.3 6.A.3.1 6.A.2.3 6.A.3.2.b		F	While the related NM standards cover the essential content contained in the CCSS, the NM standards do not specify some of the details listed in the CCSS.
Grade 6: EE Represent and analyze quantitative relationships between dependent and independent variables.							
6.EE.9	9. Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. <i>For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation $d = 65t$ to represent the relationship between distance and time.</i>			6.A.1.1 6.A.1.2 6.A.1.3 6.A.2.1 6.A.2.2 6.A.2.4 6.A.2.5 6.A.3.1 6.A.3.2.b 6.A.3.2.d 6.A.4.2 6.A.4.4		F	While the related NM standards cover the essential content contained in the CCSS, the NM standards do not specify some of the details listed in the CCSS.

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Common Core State Standard							
CCSS Standard ID	Number	Letter	CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
Grade 6: G Solve real-world and mathematical problems involving area, surface area, and volume.							
6.G.1	1. Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.				4.M.2.2 7.G.4.1	P	The CCSS standard is much more specific than the related NM standards, including essential content not specified in the NM standards.
6.G.2	2. Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas $V = lwh$ and $V = bh$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.				8.N.3.9 8.G.4.3 8.G.4.4 8.M.1.1 8.M.2.4	P	The related NM standards do not describe complete coverage of the CCSS standard, which specifies packing a prism with unit fraction edged cubes and noting the relationship of multiplying three fractional lengths with two volume formulas, and specifies real-world contexts.

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CCSS Standard ID	Common Core State Standard		CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
	Number	Letter					
6.G.3	3. Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.				7.G.2.1 8.G.2.1	F	While the related NM standards cover the essential content contained in the CCSS, the NM standards do not specify some of the details listed in the CCSS.
6.G.4	4. Represent three-dimensional figures 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.				8.G.4.5 8.M.2.4	P	The related NM standards do not describe complete coverage of the CCSS standard, which address lower-level content than the related NM standards (i.e., nets are limited to triangles and rectangles) and also specifies real-world context.
Grade 6: SP Develop understanding of statistical variability.							
6.SP.1	1. Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. <i>For example, "How old am I?" is not a statistical question, but "How old are the students in my school?" is a statistical question because one anticipates variability in students' ages.</i>				5.D.1.6	F	While the related NM standard covers the essential content contained in the CCSS, the NM standard does not specify some of the details listed in the CCSS.

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	Number	Letter					
6.SP.2	2. 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.					N	No grade-appropriate NM standard(s) address the content of this CCSS standard.
6.SP.3	3. Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.					N	No grade-appropriate NM standards address the content of this CCSS standard, which specifies differences between measures of center and measures of variation.
Grade 6: SP Summarize and describe distributions.							
6.SP.4	4. Display numerical data in plots on a number line, including dot plots, histograms, and box plots.				5.D.1.1 5.D.2.1	F	While the related NM standards cover the essential content contained in the CCSS, the NM standards do not specify some of the details listed in the CCSS.
6.SP.5a	5. Summarize numerical data sets in relation to their context, such as by:	a. Reporting the number of observations.		6.D.1.1 6.D.1.3 6.D.1.5 6.D.1.8 6.D.1.9 6.D.1.11 6.D.2.4 6.D.2.7		P	The related NM standards do not describe complete coverage of the CCSS standard, which includes measures of variability (interquartile range, mean absolute deviation).
6.SP.5b		b. Describing the nature of the attribute under investigation, including how it was measured and its units of measurement.					

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Common Core State Standard							
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6.SP.5c		c. Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered.					
6.SP.5d		d. Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.					
Grade 7: RP Analyze proportional relationships and use them to solve real-world and mathematical problems.							
7.RP.1	1. Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. <i>For example, if a person walks 1/2 mile in each 1/4 hour, compute the unit rate as the complex fraction $\frac{1/2}{1/4}$ miles per hour, equivalently 2 miles per hour.</i>			7.A.1.6 7.M.1.1 7.M.1.5 7.M.2.3		P	The CCSS standard is much more specific than the related NM standards, including essential content not specified in the NM standards.

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	Number	Letter					
7.RP.2a	2. Recognize and represent proportional relationships between quantities.	a. Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.			6.N.2.4 6.N.3.6 6.A.1.1 6.A.1.2 6.A.1.3 6.A.1.4 6.A.2.1 6.A.4.2 6.A.4.3 6.A.4.4 8.N.3.6 8.A.2.4	P	The CCSS standard is much more specific than the related NM standards, including essential content not specified in the NM standards.
7.RP.2b		b. Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.					
7.RP.2c		c. Represent proportional relationships by equations. <i>For example, if total cost t is proportional to the number n of items purchased at a constant price p, the relationship between the total cost and the number of items can be expressed as $t = pn$.</i>					
7.RP.2d		d. Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points $(0, 0)$ and $(1, r)$ where r is the unit rate.					

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Common Core State Standard							
CCSS Standard ID	Number	Letter	CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
7.RP.3	3. Use proportional relationships to solve multistep ratio and percent problems. <i>Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.</i>			7.N.2.3 7.N.3.2 7.N.3.4 7.M.2.3 7.A.4.4		F	
Grade 7: NS Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.							
7.NS.1a	1. Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.	a. Describe situations in which opposite quantities combine to make 0. <i>For example, a hydrogen atom has 0 charge because its two constituents are oppositely charged.</i>				N	No grade-appropriate NM standard(s) address the content of this CCSS standard.
7.NS.1b		b. Understand $p + q$ as the number located a distance $ q $ from p , in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts.					

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CCSS Standard ID	Common Core State Standard		CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
	Number	Letter					
7.NS.1c		c. Understand subtraction of rational numbers as adding the additive inverse, $p - q = p + (-q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.					
7.NS.1d		d. Apply properties of operations as strategies to add and subtract rational numbers.					
7.NS.2a	2. Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.	a. Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as $(-1)(-1) = 1$ and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.				N	No grade-appropriate NM standard(s) address the content of this CCSS standard.
7.NS.2b		b. Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then $-(p/q) = (-p)/q = p/(-q)$. Interpret quotients of rational numbers by describing real-world contexts.					

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CCSS Standard ID	Common Core State Standard		CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
	Number	Letter					
7.NS.2c		c. Apply properties of operations as strategies to multiply and divide rational numbers.					
7.NS.2d		d. Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.					
7.NS.3	3. Solve real-world and mathematical problems involving the four operations with rational numbers. ¹		¹ Computations with rational numbers extend the rules for manipulating fractions to complex fractions.	7.N.1.3 7.N.2.1 7.N.2.3 7.N.2.4 7.N.2.5 7.N.2.9 7.N.3.2 7.N.3.4 7.N.3.5 7.A.1.6 7.A.4.4		F	While the related NM standards cover the essential content contained in the CCSS, the NM standards do not specify some of the details listed in the CCSS.

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CCSS Standard ID	Common Core State Standard		CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
	Number	Letter					
	Grade 7: EE Use properties of operations to generate equivalent expressions.						
7.EE.1	1. Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.				8.N.2.1 8.N.3.4 8.N.3.5	P	The related NM standards do not describe complete coverage of the CCSS standard, which specifies factoring and expanding linear expressions.
7.EE.2	2. Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. <i>For example, $a + 0.05a = 1.05a$ means that “increase by 5%” is the same as “multiply by 1.05.”</i>					N	No grade-appropriate NM standards address the content of this CCSS standard.

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CCSS Standard ID	Common Core State Standard		CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
	Number	Letter					
Grade 7: EE Solve real-life and mathematical problems using numerical and algebraic expressions and equations.							
7.EE.3	3. Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. <i>For example: If a woman making \$25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or \$2.50, for a new salary of \$27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.</i>			7.N.1.3 7.N.2.2 7.N.2.9 7.N.3.1 7.N.3.2 7.A.1.3 7.A.1.6 7.A.2.2 7.A.2.3 7.A.2.4 7.A.4.4		F	While the related NM standards cover the essential content contained in the CCSS, the NM standards do not specify some of the details listed in the CCSS. NM standards 6.N.3.2, 6.N.3.5, 6.N.3.7, 8.N.2.1, 8.N.2.2, 8.N.3.2, 8.N.3.4, 8.N.3.6, 8.A.2.2, and 8.A.4.4 also address this CCSS content.

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Common Core State Standard							
CCSS Standard ID	Number	Letter	CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
7.EE.4a	4. Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.	a. Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p , q , and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. <i>For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?</i>		7.A.2.1.b 7.A.2.1.c 7.A.2.2 7.A.3.3 7.A.4.1 7.A.4.4		F	While the related NM standards cover the essential content contained in the CCSS, the NM standards do not specify some of the details listed in the CCSS.
7.EE.4b		b. Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p , q , and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. <i>For example: As a salesperson, you are paid \$50 per week plus \$3 per sale. This week you want your pay to be at least \$100. Write an inequality for the number of sales you need to make, and describe the solutions.</i>					
Grade 7: G Draw, construct, and describe geometrical figures and describe the relationships between them.							
7.G.1	1. Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.			7.A.3.1 7.A.3.3 7.G.3.1 7.M.1.2 7.M.2.1 7.M.2.2 7.M.2.3		F	While the related NM standards cover the essential content contained in the CCSS, the NM standards do not specify some of the details listed in the CCSS.

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CCSS Standard ID	Common Core State Standard		CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
	Number	Letter					
7.G.2	2. Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.			7.G.4.2.c		P	The related NM standard does not describe complete coverage of the CCSS standard, which does not limit geometric shapes to quadrilaterals and triangles as in the NM standard.
7.G.3	3. Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.					N	No grade-appropriate NM standards address the content of this CCSS standard.
Grade 7: G Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.							
7.G.4	4. Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.			7.G.1.2 7.G.1.4 7.M.2.2		P	The related NM standards do not describe complete coverage of the CCSS standard, which specifies informally deriving the relationship between circumference and area of a circle.
7.G.5	5. Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.			7.G.4.2.a 7.G.4.2.b 7.M.2.1		P	The related NM standards do not describe complete coverage of the CCSS standard, which specifies multi-step problems and does not limit figures to triangles and quadrilaterals as in the NM standards.

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Common Core State Standard							
CCSS Standard ID	Number	Letter	CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
7.G.6	6. Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.				8.G.4.3 8.G.4.4 8.G.4.5 8.M.1.1 8.M.2.4 8.M.2.6 9-12.G.1.2 9-12.G.1.3	F	
Grade 7: SP Use random sampling to draw inferences about a population.							
7.SP.1	1. Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.					N	No grade-appropriate NM standard(s) address the content of this CCSS standard.

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Common Core State Standard							
CCSS Standard ID	Number	Letter	CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
7.SP.2	2. Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions. <i>For example, estimate the mean word length in a book by randomly sampling words from the book; predict the winner of a school election based on randomly sampled survey data. Gauge how far off the estimate or prediction might be.</i>			7.D.1.12 7.D.2.5		F	While the related NM standards cover the essential content contained in the CCSS, the NM standards do not specify some of the details listed in the CCSS.
Grade 7: SP Draw informal comparative inferences about two populations.							
7.SP.3	3. Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability. <i>For example, the mean height of players on the basketball team is 10 cm greater than the mean height of players on the soccer team, about twice the variability (mean absolute deviation) on either team; on a dot plot, the separation between the two distributions of heights is noticeable.</i>			7.D.2.1 7.D.2.2 7.D.2.4 7.D.3.2		P	The related NM standards do not describe complete coverage of the CCSS standard, which emphasizes measures of variability.

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CCSS Standard ID	Number	Letter	CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
7.SP.4	4. Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. <i>For example, decide whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourth-grade science book.</i>			7.D.1.12 7.D.2.1 7.D.2.2 7.D.2.4 7.D.3.2		P	The related NM standards do not describe complete coverage of the CCSS standard, which emphasizes measures of variability.
Grade 7: SP Investigate chance processes and develop, use, and evaluate probability models.							
7.SP.5	5. Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around 1/2 indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.					N	No grade-appropriate NM standard(s) address the content of this CCSS standard.

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	Number	Letter					
7.SP.6	6. Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability. <i>For example, when rolling a number cube 600 times, predict that a 3 or 6 would be rolled roughly 200 times, but probably not exactly 200 times.</i>				5.D.4.1 5.D.4.2 5.D.4.4 5.D.4.6 6.D.3.2 6.D.3.4 6.D.4.3	F	While the related NM standards cover the essential content contained in the CCSS, the NM standards do not specify some of the details listed in the CCSS.
7.SP.7a	7. Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy.	a. Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. <i>For example, if a student is selected at random from a class, find the probability that Jane will be selected and the probability that a girl will be selected.</i>			5.D.4.1 5.D.4.2 5.D.4.3 8.D.3.3 8.D.3.4	F	
7.SP.7b		b. Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process. <i>For example, find the approximate probability that a spinning penny will land heads up or that a tossed paper cup will land open-end down. Do the outcomes for the spinning penny appear to be equally likely based on the observed frequencies?</i>					

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Common Core State Standard							
CCSS Standard ID	Number	Letter	CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
7.SP.8a	8. Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.	a. Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs.		7.D.4.1 7.D.4.6 7.D.4.7		P	The related NM standards do not describe complete coverage of the CCSS standard, which specifies foundational understanding, and designing and using a simulation to generate frequencies for compound events. NM standards 6.D.4.1 and 6.D.4.4 also address this CCSS content.
7.SP.8b		b. Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., “rolling double sixes”), identify the outcomes in the sample space which compose the event.					
7.SP.8c		c. Design and use a simulation to generate frequencies for compound events. <i>For example, use random digits as a simulation tool to approximate the answer to the question: If 40% of donors have type A blood, what is the probability that it will take at least 4 donors to find one with type A blood?</i>					

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	Number	Letter					
	Grade 8: NS Know that there are numbers that are not rational, and approximate them by rational numbers.						
8.NS.1	1. Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number.			8.N.3.3 8.N.3.4 8.N.3.5 8.N.3.6		F	Although the related NM standards address higher level content than the CCSS standard, seventh grade standards 7.N.1.2, 7.N.2.2, and 7.N.3.2 provide full coverage of the CCSS.
8.NS.2	2. Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., π^2). <i>For example, by truncating the decimal expansion of $\sqrt{2}$, show that $\sqrt{2}$ is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations.</i>			8.N.3.2 8.N.3.3 8.N.3.4 8.N.3.7		F	While the related NM standards cover the essential content contained in the CCSS, the NM standards do not specify some of the details listed in the CCSS.

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CCSS Standard ID	Common Core State Standard		CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
	Number	Letter					
	Grade 8: EE Work with radicals and integer exponents.						
8.EE.1	1. Know and apply the properties of integer exponents to generate equivalent numerical expressions. <i>For example, $3^2 \times 3^{-5} = 3^{-3} = 1/3^3 = 1/27$.</i>			8.N.2.1 8.N.2.2 8.N.3.4 8.N.3.5 8.N.3.8		P	The related NM standards do not describe complete coverage of the CCSS standard, which includes bases for numbers other than powers of 10. NM standards 7.N.2.1, 7.N.2.8, and 9-12.A.1.6 also address this CCSS content.
8.EE.2	2. Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that $\sqrt{2}$ is irrational.			8.N.2.2		F	While the related NM standard covers the essential content contained in the CCSS, the NM standard does not specify some of the details listed in the CCSS.
8.EE.3	3. Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. <i>For example, estimate the population of the United States as 3×10^8 and the population of the world as 7×10^9, and determine that the world population is more than 20 times larger.</i>			8.N.3.6 8.N.3.8		F	While the related NM standards cover the essential content contained in the CCSS, the NM standards do not specify some of the details listed in the CCSS.

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CCSS Standard ID	Number	Letter	CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
8.EE.4	4. Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.			8.N.1.2 8.N.3.6 8.N.3.8		P	The related NM standards do not describe complete coverage of the CCSS standard, which specifies using both decimal and scientific notation, using units of very small quantities, and interpreting scientific notation.
Grade 8: EE Understand the connections between proportional relationships, lines, and linear equations.							
8.EE.5	5. Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. <i>For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.</i>			8.A.1.1 8.A.1.2.a 8.A.1.2.b 8.A.2.4 8.A.2.5 8.A.2.6 8.A.2.7 8.A.3.1 8.A.4.7		F	While the related NM standards cover the essential content contained in the CCSS, the NM standards do not specify some of the details listed in the CCSS. NM standards 7.A.1.2, 7.A.1.5, and 7.A.1.6 also address this CCSS content.

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Common Core State Standard							
CCSS Standard ID	Number	Letter	CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
8.EE.6	6. Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation $y = mx$ for a line through the origin and the equation $y = mx + b$ for a line intercepting the vertical axis at b .			8.A.1.2.a 8.A.1.2.b 8.A.2.5 8.A.4.6 8.G.4.2		P	The related NM standards do not describe complete coverage of the CCSS standard, which specifies using similar triangles to explain slope, and deriving equations with specific y -intercepts. NM standards 7.A.2.5, 7.A.3.2, 9-12.A.6, and 9-12.A.2.14 also address this CCSS content.
Grade 8: EE Analyze and solve linear equations and pairs of simultaneous linear equations.							
8.EE.7a	7. Solve linear equations in one variable.	a. Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form $x = a$, $a = a$, or $a = b$ results (where a and b are different numbers).				N	No grade-appropriate NM standards address the content of this CCSS standard.
8.EE.7b		b. Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.					
8.EE.8a	8. Analyze and solve pairs of simultaneous linear equations.	a. Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.		8.A.2.5 8.A.2.7 8.A.3.1 8.A.4.2		P	The related NM standards do not describe complete coverage of the CCSS standard, which specifies foundational understanding of solutions to a system of equations, estimating solutions by graphing, solving by inspection, and specifies real-world context.

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		Common Core State Standard					
CCSS Standard ID	Number	Letter	CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
8.EE.8b		b. Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. <i>For example, $3x + 2y = 5$ and $3x + 2y = 6$ have no solution because $3x + 2y$ cannot simultaneously be 5 and 6.</i>					
8.EE.8c		c. Solve real-world and mathematical problems leading to two linear equations in two variables. <i>For example, given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair.</i>					
		Grade 8: F Define, evaluate, and compare functions.					
8.F.1	1. Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output. ¹		¹ Function notation is not required in Grade 8.		9-12.A.2.1 9-12.A.2.2	F	While the related NM standards cover the essential content contained in the CCSS, the NM standards do not specify some of the details listed in the CCSS.

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CCSS Standard ID	Common Core State Standard		CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
	Number	Letter					
8.F.2	2. Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). <i>For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.</i>				9-12.A.2.3 9-12.A.2.4 9-12.A.2.13 9-12.A.2.14 9-12.A.3.8	P	The CCSS standard is much broader than the related NM standards.
8.F.3	3. Interpret the equation $y = mx + b$ as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. <i>For example, the function $A = s^2$ giving the area of a square as a function of its side length is not linear because its graph contains the points (1,1), (2,4) and (3,9), which are not on a straight line.</i>			8.A.1.2.a 8.A.2.5 8.A.4.6		P	The related NM standards do not describe complete coverage of the CCSS standard, which specifies providing examples of functions that are not linear.

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Common Core State Standard							
CCSS Standard ID	Number	Letter	CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
Grade 8: F Use functions to model relationships between quantities.							
8.F.4	4. Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.			8.A.1.1 8.A.1.2.a 8.A.2.5 8.A.2.7 8.A.3.1 8.A.4.5 8.A.4.6 8.A.4.7		F	While the related NM standards cover the essential content contained in the CCSS, the NM standards do not specify some of the details listed in the CCSS, which specifies interpreting initial values and constructing a function given two (x, y) values.
8.F.5	5. Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.			8.A.3.1 8.A.4.5		F	
Grade 8: G Understand congruence and similarity using physical models, transparencies, or geometry software.							
8.G.1a	1. Verify experimentally the properties of rotations, reflections, and translations:	a. Lines are taken to lines, and line segments to line segments of the same length.		8.G.3.2 8.G.4.2 8.G.4.3		F	While the related NM standards cover the essential content contained in the CCSS, the NM standards do not specify some of the details listed in the CCSS.

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	Number	Letter					
8.G.1b		b. Angles are taken to angles of the same measure.					
8.G.1c		c. Parallel lines are taken to parallel lines.					
8.G.2	2. Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.			8.G.3.2 8.G.4.2		P	The related NM standards do not describe complete coverage of the CCSS standard, which specifies using a sequence of translations to show congruence.
8.G.3	3. Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.			8.G.2.1 8.G.3.2		F	
8.G.4	4. Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.			8.G.3.2 8.G.4.2		P	The related NM standards do not describe complete coverage of the CCSS standard, which specifies using a sequence of translations and dilations to show similarity.

New Mexico Mathematics Standards Alignment to Common Core State Standards for Mathematics

Common Core State Standard							
CCSS Standard ID	Number	Letter	CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
8.G.5	5. Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles. <i>For example, arrange three copies of the same triangle so that the sum of the three angles appears to form a line, and give an argument in terms of transversals why this is so.</i>			8.G.4.1 8.G.4.2		P	The related NM standards do not describe complete coverage of the CCSS standard, which specifies using informal arguments and angle-angle criteria of similar triangles.
Grade 8: G Understand and apply the Pythagorean Theorem.							
8.G.6	6. Explain a proof of the Pythagorean Theorem and its converse.			8.G.1.3		F	The related NM standard covers the essential content contained in the CCSS by building upon the related NM 7.G.1.3 standard, in which students explain and use the Pythagorean Theorem, but not its converse.
8.G.7	7. Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.			8.G.1.3 8.G.2.1		F	
8.G.8	8. Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.			8.G.1.3 8.G.2.1		F	

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CCSS Standard ID	Common Core State Standard		CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
	Number	Letter					
	Grade 8: G Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.						
8.G.9	9. Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.			8.G.4.3 8.G.4.4 8.M.2.4		P	The related NM standards do not describe complete coverage of the CCSS standard, which specifies knowing the volume formulas and includes cones and spheres, which would be covered with 9-12.G.1.3.
	Grade 8: SP Investigate patterns of association in bivariate data.						
8.SP.1	1. Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.			8.D.1.1 8.D.1.3.b 8.D.2.2 8.D.2.3.d 8.D.2.4 8.D.2.6		F	While the related NM standards cover the essential content contained in the CCSS, the NM standards do not specify some of the details listed in the CCSS.
8.SP.2	2. Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.			8.D.1.1 8.D.1.3.b 8.D.2.3.d 8.D.2.4		P	The related NM standards do not describe complete coverage of the CCSS standard, which specifies foundational understanding, and informally assessing the model fit.

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CCSS Standard ID	Common Core State Standard		CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
	Number	Letter					
8.SP.3	3. Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept. <i>For example, in a linear model for a biology experiment, interpret a slope of 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height.</i>				9-12.D.2.9 9-12.D.2.10 9-12.D.2.11	P	The related NM standards do not describe complete coverage of the CCSS standard, which specifies interpreting slope and intercept.
8.SP.4	4. Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables. <i>For example, collect data from students in your class on whether or not they have a curfew on school nights and whether or not they have assigned chores at home. Is there evidence that those who have a curfew also tend to have chores?</i>			8.D.2.8 8.D.2.2 8.D.1.3.a 8.D.1.3.f 8.D.2.3.g 8.D.3.3		P	The related NM standards do not describe complete coverage of the CCSS standard, which specifies displaying categorical data with frequency tables and using relative frequencies to describe possible associations.

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CCSS Standard ID	Common Core State Standard		CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
	Number	Letter					
	Grade N: RN Extend the properties of exponents to rational exponents.						
N-RN.1	1. Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents. <i>For example, we define $5^{1/3}$ to be the cube root of 5 because we want $(5^{1/3})^3 = 5^{(1/3)3}$ to hold, so $(5^{1/3})^3$ must equal 5.</i>			9-12.A.1.11 9-12.A.1.1		P	The CCSS standard is much more specific than the related NM standards, including essential content not specified in the NM standards.
N-RN.2	2. Rewrite expressions involving radicals and rational exponents using the properties of exponents.			9-12.A.1.11 9-12.A.1.1		F	There is some amount of ambiguity in both the CCSS standard N-RN.2 and the NM standard 9-12.A.1.11. The CCSS may be specifically related to numerical expressions, but that is not made clear. The NM standard specifically states "algebraic expressions" which may be beyond the CCSS standard. While the ambiguities are significant enough to report, they were not of such a degree to prevent full (F) alignment between the CCSS standard and the NM standards.

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CCSS Standard ID	Common Core State Standard		CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
	Number	Letter					
	Grade N: RN Use properties of rational and irrational numbers.						
N-RN.3	3. Explain why the sum or product of two rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational.					N	No grade-appropriate NM standards address the content of this CCSS standard.
	Grade N: Q Reason quantitatively and use units to solve problems.						
N-Q.1	1. Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.			9-12.A.2.13 9-12.G.1.1 9-12.G.2.1 9-12.D.2.3		P	The CCSS standard is much more specific than the related NM standards, including essential content not specified in the NM standards. Many additional standards were considered (most in the general category of graphing functions), but these were not determined to align since none of them specifically targets the importance of units and scales in the graph.
N-Q.2	2. Define appropriate quantities for the purpose of descriptive modeling.			9-12.G.1.1		P	The CCSS standard is much broader than the related NM standard.
N-Q.3	3. Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.			9-12.A.1.5		F	

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CCSS Standard ID	Common Core State Standard		CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
	Number	Letter					
	Grade N: CN Perform arithmetic operations with complex numbers.						
N-CN.1	1. Know there is a complex number i such that $i^2 = -1$, and every complex number has the form $a + bi$ with a and b real.			9-12.A.1.2		F	
N-CN.2	2. Use the relation $i^2 = -1$ and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers.					N	No grade-appropriate NM standards address the content of this CCSS standard. NM standard 9-12.A.1.6 was considered, but it does not specifically mention operations with complex numbers. It was considered because complex numbers appear in 9-12.A.1.2, so it might be reasonable to assume students would be doing operations on complex numbers. However, since complex numbers are not specifically mentioned in 9-12.A.1.6, no direct alignment could be determined.
N-CN.3	3. (+) Find the conjugate of a complex number; use conjugates to find moduli and quotients of complex numbers.					N	No grade-appropriate NM standards address the content of this CCSS standard.
	Grade N: CN Represent complex numbers and their operations on the complex plane.						
N-CN.4	4. (+) Represent complex numbers on the complex plane in rectangular and polar form (including real and imaginary numbers), and explain why the rectangular and polar forms of a given complex number represent the same number.					N	No grade-appropriate NM standards address the content of this CCSS standard.

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CCSS Standard ID	Common Core State Standard		CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
	Number	Letter					
N-CN.5	5. (+) Represent addition, subtraction, multiplication, and conjugation of complex numbers geometrically on the complex plane; use properties of this representation for computation. <i>For example, $(1 - \sqrt{3}i)^3 = 8$ because $(1 - \sqrt{3}i)$ has modulus 2 and argument 120°.</i>					N	No grade-appropriate NM standards address the content of this CCSS standard.
N-CN.6	6. (+) Calculate the distance between numbers in the complex plane as the modulus of the difference, and the midpoint of a segment as the average of the numbers at its endpoints.					N	No grade-appropriate NM standards address the content of this CCSS standard.
Grade N: CN Use complex numbers in polynomial identities and equations.							
N-CN.7	7. Solve quadratic equations with real coefficients that have complex solutions.			9-12.A.1.9 9-12.A.2.12		P	The CCSS standard is much more specific than the related NM standards, including essential content not specified in the NM standards.
N-CN.8	8. (+) Extend polynomial identities to the complex numbers. <i>For example, rewrite $x^2 + 4$ as $(x + 2i)(x - 2i)$.</i>			9-12.A.1.13 9-12.A.1.16 9-12.A.1.12		P	The CCSS standard is much more specific than the related NM standards, including essential content not specified in the NM standards.

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CCSS Standard ID	Common Core State Standard		CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
	Number	Letter					
N-CN.9	9. (+) Know the Fundamental Theorem of Algebra; show that it is true for quadratic polynomials.			9-12.AX.2.1		P	The CCSS standard is much more specific than the related NM standard, including essential content not specified in the NM standard. "Know" from the CCSS standard was interpreted to mean the same as "using" from the NM standard, but the NM standard lacks any requirement to show that the Fundamental Theorem of Algebra is true for quadratic polynomials.
Grade N: VM Represent and model with vector quantities.							
N-VM.1	1. (+) Recognize vector quantities as having both magnitude and direction. Represent vector quantities by directed line segments, and use appropriate symbols for vectors and their magnitudes (e.g., \mathbf{v} , $ \mathbf{v} $, $ \mathbf{v} $, v).					N	No grade-appropriate NM standards address the content of this CCSS standard.
N-VM.2	2. (+) Find the components of a vector by subtracting the coordinates of an initial point from the coordinates of a terminal point.					N	No grade-appropriate NM standards address the content of this CCSS standard.
N-VM.3	3. (+) Solve problems involving velocity and other quantities that can be represented by vectors.					N	No grade-appropriate NM standards address the content of this CCSS standard.
Grade N: VM Perform operations on vectors.							
N-VM.4a	4. (+) Add and subtract vectors.	a. Add vectors end-to-end, component-wise, and by the parallelogram rule. Understand that the magnitude of a sum of two vectors is typically not the sum of the magnitudes.				N	No grade-appropriate NM standards address the content of this CCSS standard.

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	Number	Letter					
N-VM.4b		b. Given two vectors in magnitude and direction form, determine the magnitude and direction of their sum.					
N-VM.4c		c. Understand vector subtraction $\mathbf{v} - \mathbf{w}$ as $\mathbf{v} + (-\mathbf{w})$, where $-\mathbf{w}$ is the additive inverse of \mathbf{w} , with the same magnitude as \mathbf{w} and pointing in the opposite direction. Represent vector subtraction graphically by connecting the tips in the appropriate order, and perform vector subtraction component-wise.					
N-VM.5a	5. (+) Multiply a vector by a scalar.	a. Represent scalar multiplication graphically by scaling vectors and possibly reversing their direction; perform scalar multiplication component-wise, e.g., as $c(v_x, v_y) = (cv_x, cv_y)$.				N	No grade-appropriate NM standards address the content of this CCSS standard.
N-VM.5b		b. Compute the magnitude of a scalar multiple $c\mathbf{v}$ using $\ c\mathbf{v}\ = c \mathbf{v}$. Compute the direction of $c\mathbf{v}$ knowing that when $ c \mathbf{v} \neq 0$, the direction of $c\mathbf{v}$ is either along \mathbf{v} (for $c > 0$) or against \mathbf{v} (for $c < 0$).					
Grade N: VM Perform operations on matrices and use matrices in applications.							
N-VM.6	6. (+) Use matrices to represent and manipulate data, e.g., to represent payoffs or incidence relationships in a network.				8.D.2.8	P	The CCSS standard is much more specific than the related NM standard, including essential content not specified in the NM standard. Manipulate data is not included in the NM standard.

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	Number	Letter					
N-VM.7	7. (+) Multiply matrices by scalars to produce new matrices, e.g., as when all of the payoffs in a game are doubled.					N	No grade-appropriate NM standards address the content of this CCSS standard.
N-VM.8	8. (+) Add, subtract, and multiply matrices of appropriate dimensions.					N	No grade-appropriate NM standards address the content of this CCSS standard.
N-VM.9	9. (+) Understand that, unlike multiplication of numbers, matrix multiplication for square matrices is not a commutative operation, but still satisfies the associative and distributive properties.					N	No grade-appropriate NM standards address the content of this CCSS standard.
N-VM.10	10. (+) Understand that the zero and identity matrices play a role in matrix addition and multiplication similar to the role of 0 and 1 in the real numbers. The determinant of a square matrix is nonzero if and only if the matrix has a multiplicative inverse.					N	No grade-appropriate NM standards address the content of this CCSS standard.
N-VM.11	11. (+) Multiply a vector (regarded as a matrix with one column) by a matrix of suitable dimensions to produce another vector. Work with matrices as transformations of vectors.					N	No grade-appropriate NM standards address the content of this CCSS standard.

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Common Core State Standard							
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N-VM.12	12. (+) Work with 2×2 matrices as a transformations of the plane, and interpret the absolute value of the determinant in terms of area.					N	No grade-appropriate NM standards address the content of this CCSS standard.
Grade A: SSE Interpret the structure of expressions.							
A-SSE.1a	1. Interpret expressions that represent a quantity in terms of its context. ★	a. Interpret parts of an expression, such as terms, factors, and coefficients.				N	No grade-appropriate NM standards address the content of this CCSS standard.
A-SSE.1b		b. Interpret complicated expressions by viewing one or more of their parts as a single entity. <i>For example, interpret $P(1+r)^n$ as the product of P and a factor not depending on P.</i>					
A-SSE.2	2. Use the structure of an expression to identify ways to rewrite it. <i>For example, see $x^4 - y^4$ as $(x^2)^2 - (y^2)^2$, thus recognizing it as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$.</i>			9-12.A.1.12		F	
Grade A: SSE Write expressions in equivalent forms to solve problems.							
A-SSE.3a	3. Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression. ★	a. Factor a quadratic expression to reveal the zeros of the function it defines.		9-12.A.1.12 9-12.A.1.13 9-12.A.1.16 9-12.A.2.11 9-12.A.1.11		P	The CCSS standard is much more specific than the related NM standards, including essential content not specified in the NM standards.

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A-SSE.3b	3. Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.	b. Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines.					
A-SSE.3c		c. Use the properties of exponents to transform expressions for exponential functions. <i>For example the expression 1.15^t can be rewritten as $(1.15^{1/12})^{12t} \approx 1.012^{12t}$ to reveal the approximate equivalent monthly interest rate if the annual rate is 15%.</i>					
A-SSE.4	4. Derive the formula for the sum of a finite geometric series (when the common ratio is not 1), and use the formula to solve problems. <i>For example, calculate mortgage payments.</i> ★			9-12.AX.5.1		P	The CCSS standard is much more specific than the related NM standard, including essential content not specified in the NM standard. Use the formula to solve problems is not found in the NM standard.
Grade A: APR Perform arithmetic operations on polynomials.							
A-APR.1	1. Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.			9-12.A.1.18		P	The CCSS standard is much more specific than the related NM standard, including essential content not specified in the NM standard.

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	Number	Letter					
Grade A: APR Understand the relationship between zeros and factors of polynomials.							
A-APR.2	2. Know and apply the Remainder Theorem: For a polynomial $p(x)$ and a number a , the remainder on division by $x - a$ is $p(a)$, so $p(a) = 0$ if and only if $(x - a)$ is a factor of $p(x)$.			9-12.AX.2.1		F	
A-APR.3	3. Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial.			9-12.A.2.8 9-12.A.2.11 9-12.AX.2.1 9-12.AX.2.2		P	The CCSS standard is much more specific than the related NM standards, including essential content not specified in the NM standards.
Grade A: APR Use polynomial identities to solve problems.							
A-APR.4	4. Prove polynomial identities and use them to describe numerical relationships. <i>For example, the polynomial identity $(x^2 + y^2)^2 = (x^2 - y^2)^2 + (2xy)^2$ can be used to generate Pythagorean triples.</i>					N	No grade-appropriate NM standards address the content of this CCSS standard.
A-APR.5	5. (+) Know and apply the Binomial Theorem for the expansion of $(x + y)^n$ in powers of x and y for a positive integer n , where x and y are any numbers, with coefficients determined for example by Pascal's Triangle. ¹		¹ The Binomial Theorem can be proved by mathematical induction or by a combinatorial argument.	9-12.AX.2.4		P	The CCSS standard is much more specific than the related NM standard, including essential content not specified in the NM standard.

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	Number	Letter					
	Grade A: APR Rewrite rational expressions.						
A-APR.6	6. Rewrite simple rational expressions in different forms; write $a(x)/b(x)$ in the form $q(x) + r(x)/b(x)$, where $a(x)$, $b(x)$, $q(x)$, and $r(x)$ are polynomials with the degree of $r(x)$ less than the degree of $b(x)$, using inspection, long division, or, for the more complicated examples, a computer algebra system.			9-12.A.1.13 9-12.A.1.18		P	The CCSS standard is much more specific than the related NM standards, including essential content not specified in the NM standards.
A-APR.7	7. (+) Understand that rational expressions form a system analogous to the rational numbers, closed under addition, subtraction, multiplication, and division by a nonzero rational expression; add, subtract, multiply, and divide rational expressions.			9-12.A.1.18		P	The CCSS standard is much more specific than the related NM standard, including essential content not specified in the NM standard.

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CCSS Standard ID	Common Core State Standard		CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
	Number	Letter					
	Grade A: CED Create equations that describe numbers or relationships.						
A-CED.1	1. Create equations and inequalities in one variable and use them to solve problems. <i>Include equations arising from linear and quadratic functions, and simple rational and exponential functions.</i>			9-12.A.3.1 9-12.A.3.2 9-12.A.3.3 9-12.A.1.7 9-12.A.1.9 9-12.A.1.17		P	Although several NM standards were aligned, some ambiguity exists in their full intent. The three most promising NM standards (9-12.A.3.1, 9-12.A.3.2, and 9-12.A.3.3) do not clarify if they are one- or two-variable equations. Given other standards in 9-12 Benchmark A.3, they may likely be two-variable, but it is not made clear. The other aligned NM standards lack a focus on solving problems. None of the NM standards includes equations from rational functions.
A-CED.2	2. Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.			9-12.A.3.1 9-12.A.3.2 9-12.A.3.3 9-12.A.1.7 9-12.A.2.6 9-12.A.2.8 9-12.A.2.9 9-12.AX.3.6		F	
A-CED.3	3. Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context. <i>For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.</i>			9-12.A.1.7 9-12.A.3.1 9-12.A.3.2 9-12.A.3.3 9-12.A.3.4 9-12.A.3.5		P	The CCSS standard is much more specific than the related NM standards, including essential content not specified in the NM standards. Systems of inequalities were not found in the NM standards. Three additional NM standards were considered (9-12.AX.1.1, 2, and 4), but none focuses explicitly on a modeling context so they were not aligned to the CCSS standard.

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Common Core State Standard							
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A-CED.4	4. Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. <i>For example, rearrange Ohm's law $V = IR$ to highlight resistance R.</i>			9-12.A.1.8		F	
Grade A: REI Understand solving equations as a process of reasoning and explain the reasoning.							
A-REI.1	1. Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.					N	No grade-appropriate NM standards address the content of this CCSS standard.
A-REI.2	2. Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.			9-12.A.1.10		P	The CCSS standard is much more specific than the related NM standard, including essential content not specified in the NM standard. Solving rational equations was not found in the NM standards.
Grade A: REI Solve equations and inequalities in one variable.							
A-REI.3	3. Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.			9-12.A.1.17 9-12.A.1.8		F	
A-REI.4a	4. Solve quadratic equations in one variable.	a. Use the method of completing the square to transform any quadratic equation in x into an equation of the form $(x - p)^2 = q$ that has the same solutions. Derive the quadratic formula from this form.		9-12.A.1.9		P	The CCSS standard is much more specific than the related NM standard, including essential content not specified in the NM standard.

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		Common Core State Standard					
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A-REI.4b		b. Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as $a \pm bi$ for real numbers a and b .					
		Grade A: REI Solve systems of equations.					
A-REI.5	5. Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.					N	No grade-appropriate NM standards address the content of this CCSS standard.
A-REI.6	6. Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.			9-12.A.3.4 9-12.AX.1.1		F	
A-REI.7	7. Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. <i>For example, find the points of intersection between the line $y = -3x$ and the circle $x^2 + y^2 = 3$.</i>			9-12.AX.1.2		P	The related NM standard addresses additional content not found in the CCSS standard. Quadratic-quadratic systems are not in the CCSS standards.

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	Number	Letter					
A-REI.8	8. (+) Represent a system of linear equations as a single matrix equation in a vector variable.					N	No grade-appropriate NM standards address the content of this CCSS standard.
A-REI.9	9. (+) Find the inverse of a matrix if it exists and use it to solve systems of linear equations (using technology for matrices of dimension 3×3 or greater).					N	No grade-appropriate NM standards address the content of this CCSS standard.
Grade A: REI Represent and solve equations and inequalities graphically.							
A-REI.10	10. Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).					N	No grade-appropriate NM standards address the content of this CCSS standard. While several NM standards address graphing equations, none of them taps into the explicit content of the CCSS standard.
A-REI.11	11. Explain why the x -coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.*					N	No grade-appropriate NM standards address the content of this CCSS standard.

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Common Core State Standard							
CCSS Standard ID	Number	Letter	CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
A-REI.12	12. Graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.			9-12.A.2.7		P	The CCSS standard is much more specific than the related NM standard, including essential content not specified in the NM standard. Systems of inequalities were not found in the NM standards.
Grade F: IF Understand the concept of a function and use function notation.							
F-IF.1	1. Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If f is a function and x is an element of its domain, then $f(x)$ denotes the output of f corresponding to the input x . The graph of f is the graph of the equation $y = f(x)$.			9-12.A.2.1 9-12.A.2.2 9-12.A.2.5		F	
F-IF.2	2. Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.			9-12.A.2.5		F	

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Common Core State Standard							
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F-IF.3	3. Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers. <i>For example, the Fibonacci sequence is defined recursively by $f(0) = f(1) = 1$, $f(n+1) = f(n) + f(n-1)$ for $n \geq 1$.</i>					N	No grade-appropriate NM standards address the content of this CCSS standard.
Grade F: IF Interpret functions that arise in applications in terms of the context.							
F-IF.4	4. For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. <i>Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.</i> *			9-12.A.2.13 9-12.A.2.10 9-12.A.2.6 9-12.A.2.8 9-12.A.2.9 9-12.AX.3.5		P	The CCSS standard is much more specific than the related NM standards, including essential content not specified in the NM standards.

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	Number	Letter					
F-IF.5	5. Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. <i>For example, if the function $h(n)$ gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function.</i> ★			9-12.AX.3.3		F	
F-IF.6	6. Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph. ★			9-12.A.2.15		P	The CCSS standard is much more specific than the related NM standard, including essential content not specified in the NM standard.
Grade F: IF Analyze functions using different representations.							
F-IF.7a	7. Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases. ★	a. Graph linear and quadratic functions and show intercepts, maxima, and minima.		9-12.A.2.3 9-12.A.2.6 9-12.A.2.8 9-12.A.2.11 9-12.A.2.9 9-12.AX.1.3 9-12.AX.2.1 9-12.AX.2.2 9-12.AX.3.4 9-12.AX.3.5 9-12.AX.3.6 9-12.GX.1.1		P	The CCSS standard is much more specific than the related NM standards, including essential content not specified in the NM standards. Graphing logarithmic functions was not found in the NM standards. Additionally, many function types from the CCSS standard contain specificity not found in the NM standards, such as showing maxima and minima for a quadratic function.

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CCSS Standard ID	Common Core State Standard		CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
	Number	Letter					
F-IF.7b		b. Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.					
F-IF.7c		c. Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior.					
F-IF.7d		d. (+) Graph rational functions, identifying zeros and asymptotes when suitable factorizations are available, and showing end behavior.					
F-IF.7e		e. Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.					
F-IF.8a	8. Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.	a. Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context.		9-12.A.1.11 9-12.A.1.12 9-12.A.1.13 9-12.A.1.16 9-12.A.2.11 9-12.A.2.9		P	The CCSS standard is much more specific than the related NM standards, including essential content not specified in the NM standards. While NM standard 9-12.A.2.11 requires determining the number of times the graph of a quadratic function will intersect the x-axis, this does not guarantee also showing the zeros as required in the CCSS standard. Completing the square was not found in the NM standards.

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	Number	Letter					
F-IF.8b		b. Use the properties of exponents to interpret expressions for exponential functions. <i>For example, identify percent rate of change in functions such as $y = (1.02)^t$, $y = (0.97)^t$, $y = (1.01)^{12t}$, $y = (1.2)^{t/10}$, and classify them as representing exponential growth or decay.</i>					
F-IF.9	9. Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). <i>For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.</i>					N	No grade-appropriate NM standards address the content of this CCSS standard.
Grade F: BF Build a function that models a relationship between two quantities.							
F-BF.1a	1. Write a function that describes a relationship between two quantities.	a. Determine an explicit expression, a recursive process, or steps for calculation from a context.		9-12.A.1.7 9-12.A.2.5 9-12.A.3.1 9-12.A.3.2 9-12.A.3.3 9-12.AX.3.1 9-12.AX.4.2		P	The CCSS standard is much more specific than the related NM standards, including essential content not specified in the NM standards.

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	Number	Letter					
F-BF.1b		b. Combine standard function types using arithmetic operations. <i>For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.</i>					
F-BF.1c		c. (+) Compose functions. <i>For example, if $T(y)$ is the temperature in the atmosphere as a function of height, and $h(t)$ is the height of a weather balloon as a function of time, then $T(h(t))$ is the temperature at the location of the weather balloon as a function of time.</i>					
F-BF.2	2. Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.*			9-12.AX.5.1		P	The CCSS standard is much more specific than the related NM standard, including essential content not specified in the NM standard.

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		Common Core State Standard					
CCSS Standard ID	Number	Letter	CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
		Grade F: BF Build new functions from existing functions.					
F-BF.3	3. Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $k f(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. <i>Include recognizing even and odd functions from their graphs and algebraic expressions for them.</i>			9-12.AX.3.7 9-12.AX.2.5 9-12.AX.2.6 9-12.A.2.14		P	The CCSS standard is much more specific than the related NM standards, including essential content not specified in the NM standards.
F-BF.4a	4. Find inverse functions.	a. Solve an equation of the form $f(x) = c$ for a simple function f that has an inverse and write an expression for the inverse. <i>For example, $f(x) = 2x^3$ or $f(x) = (x+1)/(x-1)$ for $x \neq 1$.</i>		9-12.AX.3.2		P	The CCSS standard is much more specific than the related NM standard, including essential content not specified in the NM standard.
F-BF.4b		b. (+) Verify by composition that one function is the inverse of another.					
F-BF.4c		c. (+) Read values of an inverse function from a graph or a table, given that the function has an inverse.					
F-BF.4d		d. (+) Produce an invertible function from a non-invertible function by restricting the domain.					

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	Number	Letter					
F-BF.5	5. (+) Understand the inverse relationship between exponents and logarithms and use this relationship to solve problems involving logarithms and exponents.			9-12.AX.4.1 9-12.AX.4.2 9-12.AX.4.3		F	
Grade F: LE Construct and compare linear, quadratic, and exponential models and solve problems.							
F-LE.1a	1. Distinguish between situations that can be modeled with linear functions and with exponential functions.	a. Prove that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals.				N	No grade-appropriate NM standards address the content of this CCSS standard. While both linear and exponential functions appear in the NM standards, none address the explicit content of this CCSS standard.
F-LE.1b		b. Recognize situations in which one quantity changes at a constant rate per unit interval relative to another.					
F-LE.1c		c. Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.					
F-LE.2	2. Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).			9-12.A.2.3 9-12.A.2.4 9-12.A.3.1 9-12.A.3.3 9-12.A.3.6 9-12.A.3.7 9-12.AX.5.1		F	

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Common Core State Standard							
CCSS Standard ID	Number	Letter	CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
F-LE.3	3. Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function.					N	No grade-appropriate NM standards address the content of this CCSS standard. While all these function types appear in the NM standards, none addresses the explicit content of this CCSS standard.
F-LE.4	4. For exponential models, express as a logarithm the solution to $ab^{ct} = d$ where a , c , and d are numbers and the base b is 2, 10, or e ; evaluate the logarithm using technology.			9-12.AX.4.3		F	
Grade F: LE Interpret expressions for functions in terms of the situation they model.							
F-LE.5	5. Interpret the parameters in a linear or exponential function in terms of a context.			9-12.A.2.14 9-12.AX.4.2		P	The CCSS standard is much more specific than the related NM standards, including essential content not specified in the NM standards.
Grade F: TF Extend the domain of trigonometric functions using the unit circle.							
F-TF.1	1. Understand radian measure of an angle as the length of the arc on the unit circle subtended by the angle.					N	No grade-appropriate NM standards address the content of this CCSS standard. Radian first appears in NM standard 6.M.1.3, but "select and use" from 6.M.1.3 was determined to be significantly different from "understand" based on the unit circle from the CCSS standard.

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CCSS Standard ID	Number	Letter	CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
F-TF.2	2. Explain how the unit circle in the coordinate plane enables the extension of trigonometric functions to all real numbers, interpreted as radian measures of angles traversed counterclockwise around the unit circle.			9-12.GX.1.3		F	
F-TF.3	3. (+) Use special triangles to determine geometrically the values of sine, cosine, tangent for $\pi/3$, $\pi/4$ and $\pi/6$, and use the unit circle to express the values of sine, cosine, and tangent for $\pi-x$, $\pi+x$, and $2\pi-x$ in terms of their values for x , where x is any real number.			9-12.GX.1.2 9-12.G.4.7		P	The CCSS standard is much more specific than the related NM standards, including essential content not specified in the NM standards.
F-TF.4	4. (+) Use the unit circle to explain symmetry (odd and even) and periodicity of trigonometric functions.			9-12.GX.1.3		P	The CCSS standard is much more specific than the related NM standard, including essential content not specified in the NM standard.
Grade F: TF Model periodic phenomena with trigonometric functions.							
F-TF.5	5. Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline.*			9-12.GX.1.6		P	The CCSS standard is much more specific than the related NM standard, including essential content not specified in the NM standard.

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	Number	Letter					
F-TF.6	6. (+) Understand that restricting a trigonometric function to a domain on which it is always increasing or always decreasing allows its inverse to be constructed.					N	No grade-appropriate NM standards address the content of this CCSS standard.
F-TF.7	7. (+) Use inverse functions to solve trigonometric equations that arise in modeling contexts; evaluate the solutions using technology, and interpret them in terms of the context.★			9-12.GX.1.4 9-12.GX.1.6		P	The CCSS standard is much more specific than the related NM standards, including essential content not specified in the NM standards.
Grade F: TF Prove and apply trigonometric identities.							
F-TF.8	8. Prove the Pythagorean identity $\sin^2(\theta) + \cos^2(\theta) = 1$ and use it to find $\sin(\theta)$, $\cos(\theta)$, or $\tan(\theta)$ given $\sin(\theta)$, $\cos(\theta)$, or $\tan(\theta)$ and the quadrant of the angle. [New wording per October 29, 2010 version of CCSS.]			9-12.GX.1.5		P	The CCSS standard is much more specific than the related NM standard, including essential content not specified in the NM standard. The CCSS standard contains specificity related to using the identity to find \sin , \cos , or \tan that is not found in the NM standard.
F-TF.9	9. (+) Prove the addition and subtraction formulas for sine, cosine, and tangent and use them to solve problems.			9-12.GX.1.5		P	The CCSS standard is much more specific than the related NM standard, including essential content not specified in the NM standard. The CCSS standard contains specificity related to tangent that is not found in the NM standard.

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	Number	Letter					
	Grade G: CO Experiment with transformations in the plane.						
G-CO.1	1. Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.					N	No grade-appropriate NM standards address the content of this CCSS standard. While many concepts named in the CCSS standard may be found throughout the NM standards, none of the NM standards addresses the concepts in the same explicit manner as the CCSS standard.
G-CO.2	2. Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).			9-12.G.3.2 9-12.G.3.4		P	The CCSS standard is much more specific than the related NM standards, including essential content not specified in the NM standards. Describing transformations as functions is not found in the NM standards.
G-CO.3	3. Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.					N	No grade-appropriate NM standards address the content of this CCSS standard.
G-CO.4	4. Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.					N	No grade-appropriate NM standards address the content of this CCSS standard.

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	Number	Letter					
G-CO.5	5. Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.			9-12.G.3.2		P	The CCSS standard is much more specific than the related NM standard, including essential content not specified in the NM standard. Specifying a sequence of transformations is not found in the NM standards.
Grade G: CO Understand congruence in terms of rigid motions.							
G-CO.6	6. Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.			9-12.G.3.2 9-12.G.3.4 9-12.G.3.1		F	
G-CO.7	7. Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.			9-12.G.3.1		P	The CCSS standard is much more specific than the related NM standard, including essential content not specified in the NM standard.
G-CO.8	8. Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions.					N	No grade-appropriate NM standards address the content of this CCSS standard.

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Common Core State Standard							
CCSS Standard ID	Number	Letter	CCSS Note	NM On-grade Standard(s)	NM Off-grade Standards(s)	Degree of CCSS Coverage (F/P/N)	Notes
Grade G: CO Prove geometric theorems.							
G-CO.9	9. Prove theorems about lines and angles. <i>Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints.</i>			9-12.G.1.9		F	
G-CO.10	10. Prove theorems about triangles. <i>Theorems include: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.</i>			9-12.G.1.9		F	The NM standard does not explicitly mention each theorem like the CCSS standard does, but the degree of coverage was determined to be Full.

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Common Core State Standard							
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G-CO.11	11. Prove theorems about parallelograms. <i>Theorems include: opposite sides are congruent, opposite angles are congruent, the diagonals of a parallelogram bisect each other, and conversely, rectangles are parallelograms with congruent diagonals.</i>			9-12.G.1.9		F	The NM standard does not explicitly mention each theorem like the CCSS standard does, but the degree of coverage was determined to be Full.
Grade G: CO Make geometric constructions.							
G-CO.12	12. Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). <i>Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.</i>			9-12.G.1.9		P	The CCSS standard is much more specific than the related NM standard, including essential content not specified in the NM standard. Some of the explicit constructions from the CCSS standard would not be included in the NM standard based on the "related to" list provided in the NM standard.

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	Number	Letter					
G-CO.13	13. Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle.			9-12.G.1.9		P	The CCSS standard is much more specific than the related NM standard, including essential content not specified in the NM standard. The constructions from the CCSS standard are so explicit that it could not be determined if they would also be included in the NM standard.
Grade G: SRT Understand similarity in terms of similarity transformations.							
G-SRT.1a	1. Verify experimentally the properties of dilations given by a center and a scale factor:	a. A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged.		9-12.G.3.4 9-12.G.4.3		P	The CCSS standard is much more specific than the related NM standards, including essential content not specified in the NM standards. A dilation taking a line to a parallel line or leaving it unchanged is not found in the NM standards.
G-SRT.1b		b. The dilation of a line segment is longer or shorter in the ratio given by the scale factor.					
G-SRT.2	2. Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.			9-12.G.3.3		P	The CCSS standard is much more specific than the related NM standard, including essential content not specified in the NM standard.

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G-SRT.3	3. Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar.					N	No grade-appropriate NM standards address the content of this CCSS standard.
Grade G: SRT Prove theorems involving similarity.							
G-SRT.4	4. Prove theorems about triangles. <i>Theorems include: a line parallel to one side of a triangle divides the other two proportionally, and conversely; the Pythagorean Theorem proved using triangle similarity.</i>			9-12.G.1.9		F	
G-SRT.5	5. Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.			9-12.G.4.1 9-12.G.1.9		F	
Grade G: SRT Define trigonometric ratios and solve problems involving right triangles.							
G-SRT.6	6. Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.			9-12.G.4.5		F	
G-SRT.7	7. Explain and use the relationship between the sine and cosine of complementary angles.					N	No grade-appropriate NM standards address the content of this CCSS standard.

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G-SRT.8	8. Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.*			9-12.G.4.6 9-12.G.4.4		F	
Grade G: SRT Apply trigonometry to general triangles.							
G-SRT.9	9. (+) Derive the formula $A = 1/2 ab \sin(C)$ for the area of a triangle by drawing an auxiliary line from a vertex perpendicular to the opposite side.					N	No grade-appropriate NM standards address the content of this CCSS standard.
G-SRT.10	10. (+) Prove the Laws of Sines and Cosines and use them to solve problems.			9-12.GX.1.5 9-12.GX.1.6		P	The CCSS standard is much more specific than the related NM standards, including essential content not specified in the NM standards. "Prove" from the CCSS standard was determined to be a higher level than "verify" from NM standard 9-12.GX.1.5, so degree of coverage could not be Full. NM standard 9-12.GX.1.5 specifies only "formulas for sine and cosine," so it was not clear if that did or did not include Laws of Sines and Cosines.
G-SRT.11	11. (+) Understand and apply the Law of Sines and the Law of Cosines to find unknown measurements in right and non-right triangles (e.g., surveying problems, resultant forces).			9-12.GX.1.6		F	
Grade G: C Understand and apply theorems about circles.							
G-C.1	1. Prove that all circles are similar.			9-12.G.1.9		F	

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	Number	Letter					
G-C.2	2. Identify and describe relationships among inscribed angles, radii, and chords. <i>Include the relationship between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle.</i>					N	No grade-appropriate NM standards address the content of this CCSS standard.
G-C.3	3. Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle.			9-12.G.1.9		P	The CCSS standard is much more specific than the related NM standard, including essential content not specified in the NM standard. All of the content in the CCSS standard may be included in the related NM standard, but it is not clear. Further, given that CCSS standard G-C.2 did not align to any NM standard, it is not reasonable to assume that proving properties of angles for a quadrilateral inscribed in a circle would be included in the NM standard 9-12.G.1.9.

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	Number	Letter					
G-C.4	4. (+) Construct a tangent line from a point outside a given circle to the circle.			9-12.G.1.9		P	The CCSS standard is much more specific than the related NM standard, including essential content not specified in the NM standard. The construction in the CCSS standard may be included in the related NM standard, but it is not clear. Further, given that there appears to be little coverage of circles in the NM standards, it is not reasonable to assume that this construction would be included in the NM standard, but since circles are specifically mentioned in the NM standard, the degree of coverage was determined to be Partial.
Grade G: C Find arc lengths and areas of sectors of circles.							
G-C.5	5. Derive using similarity the fact that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure of the angle as the constant of proportionality; derive the formula for the area of a sector.					N	No grade-appropriate NM standards address the content of this CCSS standard.
Grade G: GPE Translate between the geometric description and the equation for a conic section.							
G-GPE.1	1. Derive the equation of a circle of given center and radius using the Pythagorean Theorem; complete the square to find the center and radius of a circle given by an equation.			9-12.AX.2.3		P	The CCSS standard is much more specific than the related NM standard, including essential content not specified in the NM standard.

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	Number	Letter					
G-GPE.2	2. Derive the equation of a parabola given a focus and directrix.			9-12.AX.2.3		P	The CCSS standard is much more specific than the related NM standard, including essential content not specified in the NM standard.
G-GPE.3	3. (+) Derive the equations of ellipses and hyperbolas given foci and directrices, using the fact that the sum or difference of distances from the foci is constant.			9-12.AX.2.3		P	The CCSS standard is much more specific than the related NM standard, including essential content not specified in the NM standard.
Grade G: GPE Use coordinates to prove simple geometric theorems algebraically.							
G-GPE.4	4. Use coordinates to prove simple geometric theorems algebraically. <i>For example, prove or disprove that a figure defined by four given points in the coordinate plane is a rectangle; prove or disprove that the point $(1, \sqrt{3})$ lies on the circle centered at the origin and containing the point $(0, 2)$.</i>			9-12.G.1.9 9-12.G.2.2 9-12.G.2.3		P	The CCSS standard is much more specific than the related NM standards, including essential content not specified in the NM standards. NM standard 9-12.G.1.9 does not specifically include using coordinates. NM standards 9-12.G.2.2 and 9-12.G.2.3 rely more on use of geometric ideas related to coordinate geometry than proving geometric theorems algebraically. However, all three NM standards were determined to provide a Partial degree of coverage.
G-GPE.5	5. Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).			9-12.G.1.9 9-12.A.3.8		P	The CCSS standard is much more specific than the related NM standards, including essential content not specified in the NM standards. NM standard 9-12.G.1.9 does not specifically include the slope criteria for parallel and perpendicular lines, but it could be included.

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	Number	Letter					
G-GPE.6	6. Find the point on a directed line segment between two given points that partitions the segment in a given ratio.			9-12.G.2.2		P	The CCSS standard is much more specific than the related NM standard, including essential content not specified in the NM standard.
G-GPE.7	7. Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.*			9-12.G.2.3		F	
Grade G: GMD Explain volume formulas and use them to solve problems.							
G-GMD.1	1. Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone. <i>Use dissection arguments, Cavalieri's principle, and informal limit arguments.</i>					N	No grade-appropriate NM standards address the content of this CCSS standard.
G-GMD.2	2. (+) Give an informal argument using Cavalieri's principle for the formulas for the volume of a sphere and other solid figures.					N	No grade-appropriate NM standards address the content of this CCSS standard.
G-GMD.3	3. Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.*			9-12.G.1.3		F	

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Common Core State Standard							
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Grade G: GMD Visualize relationships between two-dimensional and three-dimensional objects.							
G-GMD.4	4. Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.					N	No grade-appropriate NM standards address the content of this CCSS standard.
Grade G: MG Apply geometric concepts in modeling situations.							
G-MG.1	1. Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).*					N	No grade-appropriate NM standards address the content of this CCSS standard.
G-MG.2	2. Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).*				8.M.2.7	P	The CCSS standard is much more specific than the related NM standard, including essential content not specified in the NM standard.
G-MG.3	3. Apply geometric methods to solve designing problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).*					N	No grade-appropriate NM standards address the content of this CCSS standard.

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	Number	Letter					
	Grade 5: ID Summarize, represent, and interpret data on a single count or measurement variable.						
S-ID.1	1. Represent data with plots on the real number line (dot plots, histograms, and box plots).			9-12.D.2.3		F	Even though the specific representations listed in the CCSS standard do not appear in the NM standard, the degree of coverage was determined to be Full.
S-ID.2	2. Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.			9-12.D.2.7 9-12.D.2.3 9-12.D.2.4		F	
S-ID.3	3. Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).			9-12.D.2.7 9-12.D.2.3 9-12.D.2.4		P	The CCSS standard is much more specific than the related NM standards, including essential content not specified in the NM standards.
S-ID.4	4. Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate. Use calculators, spreadsheets, and tables to estimate areas under the normal curve.			9-12.D.2.6		P	The CCSS standard is much more specific than the related NM standard, including essential content not specified in the NM standard.

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	Number	Letter					
Grade 5: ID Summarize, represent, and interpret data on two categorical and quantitative variables.							
S-ID.5	5. Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data.					N	No grade-appropriate NM standards address the content of this CCSS standard. NM standard 8.D.2.8 was considered as possibly being aligned, but the specificity of the CCSS standard coupled with the general nature of 8.D.2.8 prevented the alignment from occurring.
S-ID.6a	6. Represent data on two quantitative variables on a scatter plot, and describe how the variables are related.	a. Fit a function to the data; use functions fitted to data to solve problems in the context of the data. <i>Use given functions or choose a function suggested by the context. Emphasize linear and exponential models.</i>		9-12.D.2.8 9-12.D.2.9 9-12.D.2.10 9-12.D.2.11		P	The CCSS standard is much more specific than the related NM standards, including essential content not specified in the NM standards. The CCSS standard addresses quadratic and exponential models related to scatter plots that are not found in the NM standards.
S-ID.6b		b. Informally assess the fit of a function by plotting and analyzing residuals.					
S-ID.6c		c. Fit a linear function for a scatter plot that suggests a linear association.					

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	Number	Letter					
	Grade 5: ID Interpret linear models.						
S-ID.7	7. Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.					N	No grade-appropriate NM standards address the content of this CCSS standard.
S-ID.8	8. Compute (using technology) and interpret the correlation coefficient of a linear fit.			9-12.D.2.11		P	The CCSS standard is much more specific than the related NM standard, including essential content not specified in the NM standard. "Interpret" from the CCSS standard was determined to be a higher level than "describe the relationship" and "determine its strength" from the NM standard.
S-ID.9	9. Distinguish between correlation and causation.			9-12.D.2.12		F	
	Grade 5: IC Understand and evaluate random processes underlying statistical experiments.						
S-IC.1	1. Understand statistics as a process for making inferences about population parameters based on a random sample from that population.			9-12.D.2.14 9-12.D.1.4		F	

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S-IC.2	2. Decide if a specified model is consistent with results from a given data-generating process, e.g., using simulation. <i>For example, a model says a spinning coin falls heads up with probability 0.5. Would a result of 5 tails in a row cause you to question the model?</i>			9-12.D.2.13		F	
Grade 5: IC Make inferences and justify conclusions from sample surveys, experiments, and observational studies.							
S-IC.3	3. Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.			9-12.D.1.1 9-12.D.1.2 9-12.D.1.3 9-12.D.1.4		F	
S-IC.4	4. Use data from a sample survey to estimate a population mean or proportion; develop a margin of error through the use of simulation models for random sampling.			9-12.D.2.14 9-12.D.2.13		P	The CCSS standard is much more specific than the related NM standards, including essential content not specified in the NM standards.
S-IC.5	5. Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant.			9-12.D.2.13		P	The CCSS standard is much more specific than the related NM standard, including essential content not specified in the NM standard.
S-IC.6	6. Evaluate reports based on data.			9-12.D.2.15		F	

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Grade 5: CP Understand independence and conditional probability and use them to interpret data.							
S-CP.1	1. Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events (“or,” “and,” “not”).					N	No grade-appropriate NM standards address the content of this CCSS standard.
S-CP.2	2. Understand that two events <i>A</i> and <i>B</i> are independent if the probability of <i>A</i> and <i>B</i> occurring together is the product of their probabilities, and use this characterization to determine if they are independent.					N	No grade-appropriate NM standards address the content of this CCSS standard.
S-CP.3	3. Understand the conditional probability of <i>A</i> given <i>B</i> as $P(A \text{ and } B)/P(B)$, and interpret independence of <i>A</i> and <i>B</i> as saying that the conditional probability of <i>A</i> given <i>B</i> is the same as the probability of <i>A</i> , and the conditional probability of <i>B</i> given <i>A</i> is the same as the probability of <i>B</i> .					N	No grade-appropriate NM standards address the content of this CCSS standard.

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	Number	Letter					
S-CP.4	4. Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two-way table as a sample space to decide if events are independent and to approximate conditional probabilities. <i>For example, collect data from a random sample of students in your school on their favorite subject among math, science, and English. Estimate the probability that a randomly selected student from your school will favor science given that the student is in tenth grade. Do the same for other subjects and compare the results.</i>					N	No grade-appropriate NM standards address the content of this CCSS standard.
S-CP.5	5. Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations. <i>For example, compare the chance of having lung cancer if you are a smoker with the chance of being a smoker if you have lung cancer.</i>					N	No grade-appropriate NM standards address the content of this CCSS standard.

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	Number	Letter					
	Grade 5: CP Use the rules of probability to compute probabilities of compound events in a uniform probability model.						
S-CP.6	6. Find the conditional probability of A given B as the fraction of B 's outcomes that also belong to A , and interpret the answer in terms of the model.			9-12.D.3.4		P	The CCSS standard is much more specific than the related NM standard, including essential content not specified in the NM standard.
S-CP.7	7. Apply the Addition Rule, $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$, and interpret the answer in terms of the model.			9-12.D.3.4		P	The CCSS standard is much more specific than the related NM standard, including essential content not specified in the NM standard.
S-CP.8	8. (+) Apply the general Multiplication Rule in a uniform probability model, $P(A \text{ and } B) = P(A)P(B A) = P(B)P(A B)$, and interpret the answer in terms of the model.			9-12.D.3.4		P	The CCSS standard is much more specific than the related NM standard, including essential content not specified in the NM standard.
S-CP.9	9. (+) Use permutations and combinations to compute probabilities of compound events and solve problems.					N	No grade-appropriate NM standards address the content of this CCSS standard.

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	Grade 5: MD Calculate expected values and use them to solve problems.						
S-MD.1	1. (+) Define a random variable for a quantity of interest by assigning a numerical value to each event in a sample space; graph the corresponding probability distribution using the same graphical displays as for data distributions.					N	No grade-appropriate NM standards address the content of this CCSS standard. NM standard 9-12.D.3.1 was considered, but "explain" from the NM standard was determined not to align to "define" from the CCSS standard.
S-MD.2	2. (+) Calculate the expected value of a random variable; interpret it as the mean of the probability distribution.					N	No grade-appropriate NM standards address the content of this CCSS standard.
S-MD.3	3. (+) Develop a probability distribution for a random variable defined for a sample space in which theoretical probabilities can be calculated; find the expected value. <i>For example, find the theoretical probability distribution for the number of correct answers obtained by guessing on all five questions of a multiple-choice test where each question has four choices, and find the expected grade under various grading schemes.</i>					N	No grade-appropriate NM standards address the content of this CCSS standard.

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S-MD.4	4. (+) Develop a probability distribution for a random variable defined for a sample space in which probabilities are assigned empirically; find the expected value. <i>For example, find a current data distribution on the number of TV sets per household in the United States, and calculate the expected number of sets per household. How many TV sets would you expect to find in 100 randomly selected households?</i>			9-12.D.3.3		P	The CCSS standard is much more specific than the related NM standard, including essential content not specified in the NM standard.
Grade 5: MD Use probability to evaluate outcomes of decisions.							
S-MD.5a	5. (+) Weigh the possible outcomes of a decision by assigning probabilities to payoff values and finding expected values.	a. Find the expected payoff for a game of chance. <i>For example, find the expected winnings from a state lottery ticket or a game at a fast-food restaurant.</i>				N	No grade-appropriate NM standards address the content of this CCSS standard.
S-MD.5b		b. Evaluate and compare strategies on the basis of expected values. <i>For example, compare a high-deductible versus a low-deductible automobile insurance policy using various, but reasonable, chances of having a minor or a major accident.</i>					
S-MD.6	6. (+) Use probabilities to make fair decisions (e.g., drawing by lots, using a random number generator).					N	No grade-appropriate NM standards address the content of this CCSS standard.

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S-MD.7	7. (+) Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game).					N	No grade-appropriate NM standards address the content of this CCSS standard.