COMMON CORE STATE STANDARDS

3 MATH

A Crosswalk to the Michigan Grade Level Content Expectations

Introduction

In June 2010, the Michigan State Board of Education adopted the Common Core State Standards (CCSS) as the state K-12 content standards for Mathematics and English Language Arts.
The complete CCSS standards document can be found at www.michigan.gov/k-12 .

Districts are encouraged to begin this transition to instruction of the new standards as soon as possible to prepare all students for career and college. New assessments based on the Common Core State Standards will be implemented in 2014-2015. More information about Michigan's involvement in the CCSS initiative and development of common assessments can be found at www.michigan.gov/k-12 by clicking the Common Core State Standards Initiative link

The CCSS for Mathematics are divided into two sets of standards: the Standards for Mathematical Practices and the Standards for Mathematical Content. This document is intended to show the alignment of Michigan's current mathematics Grade Level Content Expectations (GLCE) to the Standards for Mathematical Content to assist with the transition to instruction and assessment based on the CCSS.

It is anticipated that this initial work will be supported by clarification documents developed at the local and state level, including documents from national organizations and other groups. This document is intended as a conversation starter for educators within and across grades. While curriculum revisions will be guided by local curriculum experts, ultimately the alignment is implemented at the classroom level. Educators will need to unfold these standards in order to compare them to current classroom practice and identify adjustments to instruction and materials that support the depth of understanding implicit in these new standards.

The crosswalk between the Grade Level Content Expectations and the Standards for Mathematical Content is organized by Michigan Focal Points/CCSS Critical Areas. There is not an attempt to show one-to-one correspondence between expectations and standards because for the most part there is none at this level. The alignment occurs when looking across focal points/critical areas and/or across GLCE topics/CCSS domains.

MICHIGAN Department of **Education**

www.michigan.gov/mde

Mathematical Practices

The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students. These standards appear in every grade level and are listed below:
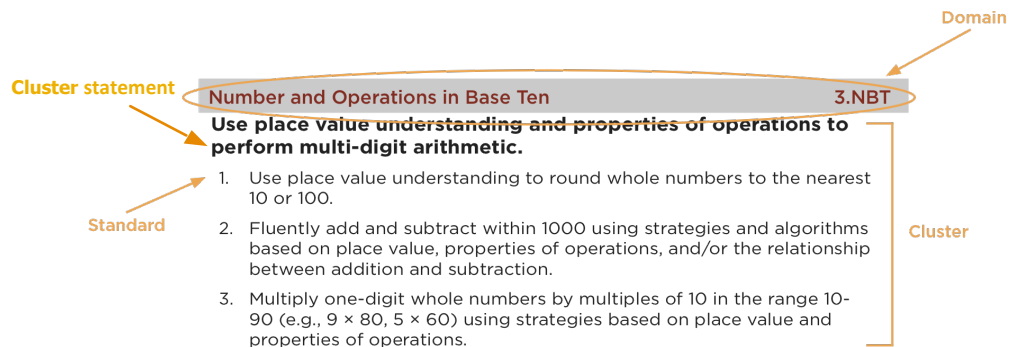
Mathematical Practices
1. Make sense of problems, and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments, and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for, and make use, of structure.
8. Look for, and express regularity in, repeated reasoning.

Organization of the Common Core State Standards

Each CCSS grade level document begins with a description of the "critical areas". These Critical Areas are parallel to the Michigan Focal Points. Below is a comparison of the Michigan Focal Points to the Critical Areas for this grade.

Michigan **3rd Grade Focal Points**	Common Core State Standards **3rd Grade Critical Area**
Developing understandings of multiplication and division and strategies for basic multiplication facts and related division facts	Developing understanding of multiplication and division and strategies for multiplication and division within 100
Developing an understanding of area and perimeter and determining the areas and perimeters of two-dimensional shapes	Developing understanding of the structure of rectangular arrays and of area
Describing properties of two-dimensional shapes and classifying three-dimensional shapes	Describing and analyzing two-dimensional shapes
Developing an understanding of fractions and fraction equivalence	Developing understanding of fractions, especially unit fractions (fractions with numerator 1)

The standards themselves are organized by *Domains* (large groups that progress across grades) and then by *Clusters* (groups of related standards, similar to the *Topics in the Grade Level Content Expectations*).

Domain

Cluster statement

Number and Operations in Base Ten   3.NBT

Use place value understanding and properties of operations to perform multi-digit arithmetic.

1. Use place value understanding to round whole numbers to the nearest 10 or 100.

Standard

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.

Cluster

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.

The table below shows the progression of the CCSS domains and clusters across the grade before, the target grade, and the following grade.

2nd Grade	3rd Grade	4th Grade
OPERATIONS AND ALGEBRAIC THINKING (OA)		
• Represent and solve problems involving addition and subtraction. • Add and subtract within 20. • Work with equal groups of objects to gain foundations for multiplication.	• Represent and solve problems involving multiplication and division. • Understand properties of multiplication and the relationship between multiplication and division. • Multiply and divide within 100. • Solve problems involving the four operations, and identify and explain patterns in arithmetic.	• Use the four operations with whole numbers to solve problems. • Gain familiarity with factors and multiples. • Generate and analyze patterns.
NUMBER AND OPERATIONS IN BASE TEN (NBT)		
• Use place value understanding and properties of operations to add and subtract.	• Use place value understanding and properties of operations to perform multi-digit arithmetic.	• Generalize place value understanding for multi-digit whole numbers.
NUMBER AND OPERATIONS—FRACTIONS (NF)		
	• Develop understanding of fractions as numbers.	• Use place value understanding and properties of operations to perform multi-digit arithmetic. • Extend understanding of fraction equivalence and ordering. • Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers. • Understand decimal notation for fractions, and compare decimal fractions.
MEASUREMENT AND DATA (MD)		
• Measure and estimate lengths in standard units. • Relate addition and subtraction to length. • Work with time and money. • Represent and interpret data.	• Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects. • Represent and interpret data. • Geometric measurement: understand concepts of area and relate area to multiplication and to addition. • Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures. • Reason with shapes and their attributes.	• Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit. • Represent and interpret data. • Geometric measurement: understand concepts of angle and measure angles..
GEOMETRY (G)		
• Reason with shapes and their attributes.	• Reason with shapes and their attributes.	• Draw and identify lines and angles, and classify shapes by properties of their lines and angles.

Alignment of Michigan Content Expectations to Common Core Standards by Michigan Focal Point

Michigan Content Expectations	Common Core State Standards
Focal Point	**Critical Area**
Developing understandings of multiplication and division and strategies for basic multiplication facts and related division facts	Developing understanding of multiplication and division and strategies for multiplication and division within 100

COMMON CONTENT

Mathematical Practices

1. Make sense of problems, and persevere in solving them.

2. Reason abstractly and quantitatively.

3. Construct viable arguments, and critique the reasoning of others.

4. Model with mathematics.

5. Use appropriate tools strategically.

6. Attend to precision.

7. Look for, and make use of, structure.

8. Look for, and express regularity in, repeated reasoning.

Count in steps, and understand even and odd numbers

N.ME.03.04 Count orally by 6's, 7's, 8's, and 9's starting with 0, making the connection between repeated addition and multiplication [NASL].

N.ME.03.05 Know that even numbers end in 0, 2, 4, 6,or 8; name a whole number quantity that can be shared in two equal groups or grouped into pairs with no remainders; recognize even numbers as multiples of 2. Know that odd numbers end in 1, 3, 5, 7, or 9, and work with patterns involving even and odd numbers. [Extended]

Solve problems involving the four operations, and identify and explain patterns in arithmetic

3. OA.9 Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. 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.

Multiply and divide whole numbers

N.MR.03.09 Use multiplication and division fact families to understand the inverse relationship of these two operations, e.g., because $3 \times 8 = 24$, we know that $24 \div 8 = 3$ or $24 \div 3 = 8$; express a multiplication statement as an equivalent division statement. [Core]

N.MR.03.10 Recognize situations that can be solved using multiplication and division including finding "How many groups?" and "How many in a group?" and write mathematical statements to represent those situations.[Core]

N.FL.03.11 Find products fluently up to 10×10; find related quotients using multiplication and division relationships. [Core]

N.MR.03.12 Find solutions to open sentences, such as $7 \times \_ = 42$ or $12 \div \_ = 4$, using the inverse relationship between multiplication and division. [Extended]

N.FL.03.13 Mentally calculate simple products and quotients up to a three-digit number by a one-digit number involving multiples of 10, e.g., 500×6, or $400 \div 8$. [NASL]

Represent and solve problems involving multiplication and division

3. OA.1 Interpret products of whole numbers, e.g., interpret 5×7 as the total number of objects in 5 groups of 7 objects each. For example, describe a context in which a total number of objects can be expressed as 5×7.

3.OA.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. For example, describe a context in which a number of shares or a number of groups can be expressed as $56 \div 8$.

3. OA.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.

3. OA.4 Determine the unknown whole number in a multiplication or division equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations $8 \times ? = 48$, $5 = \_\_ \div 3$, $6 \times 6 = ?$

Michigan Content Expectations	Common Core State Standards

Problem-solving with whole numbers

N.MR.03.15 Given problems that use any one of the four operations with appropriate numbers, represent with objects, words (including "product" and "quotient"), and mathematical statements; solve. [Core]

Understand properties of multiplication and the relationship between multiplication and division

3. OA.5 Apply properties[1] of operations as strategies to multiply and divide. Examples: If 6 × 4 = 24 is known, then 4 × 6 = 24 is also known. (Commutative property of multiplication) 3 × 5 × 2 can be found by 3 × 5 = 15 then 15 × 2 = 30, or by 5 × 2 = 10 then 3 × 10 = 30. (Associative property of multiplication) Knowing that 8 × 5 = 40 and 8 × 2 = 16, one can find 8 × 7 as 8 × (5 + 2) = (8 × 5) + (8 × 2) = 40 + 16 = 56. (Distributive property)

3. OA.6 Understand division as an unknown-factor problem. For example, divide 32 ÷ 8 by finding the number that makes 32 when multiplied by 8.

3. OA.7 Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of one-digit numbers.

Solve problems involving the four operations, and identify and explain patterns in arithmetic

3. OA.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[2].

Use place value understanding and properties of operations to perform multi-digit arithmetic

3.NBT.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[3].

Mathematical Practices

1. Make sense of problems, and persevere in solving them.

2. Reason abstractly and quantitatively.

3. Construct viable arguments, and critique the reasoning of others.

4. Model with mathematics.

5. Use appropriate tools strategically.

6. Attend to precision.

7. Look for, and make use of, structure.

8. Look for, and express regularity in, repeated reasoning.

---

[1] Students need not use formal terms for these properties.

[2] 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] A range of algorithms may be used

Michigan Content Expectations	Common Core State Standards

CONTENT THAT IS DIFFERENT

Content moving out of 3rd grade

Multiply and divide whole numbers

N.MR.03.14 Solve division problems involving remainders, viewing the remainder as the "number left over"; interpret based on problem context, e.g., when we have 25 children with 4 children per group then there are 6 groups with 1 child left over. [Core]

4th grade
Use the four operations with whole numbers to solve problems

4. OA.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.

Focal Point

Developing an understanding of area and perimeter and determining the areas and perimeters of two-dimensional shapes

Critical Area

Developing understanding of multiplication and division and strategies for multiplication and division within 100

COMMON CONTENT

Understand meaning of area and perimeter and apply in problems

M.UN.03.05 Know the definition of area and perimeter and calculate the perimeter of a square and rectangle given whole number side lengths. [Core]

M.UN.03.06 Use square units in calculating area by covering the region and counting the number of square units.[Core]

M.UN.03.07 Distinguish between units of length and area and choose a unit appropriate in the context.[Core]

M.UN.03.08 Visualize and describe the relative sizes of one square inch and one square centimeter. [Extended]

Estimate perimeter and area

M.TE.03.09 Estimate the perimeter of a square and rectangle in inches and centimeters; estimate the area of a square and rectangle in square inches and square centimeters. [Core]

Geometric measurement: understand concepts of area and relate area to multiplication and to addition

3. MD.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.

    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 Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).

3. MD.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

Michigan Content Expectations	**Common Core State Standards**
Solve measurement problems	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.
M.PS.03.10 Add and subtract lengths, weights, and times using mixed units within the same measurement system. [Extended]	
M.PS.03.11 Add and subtract money in dollars and cents. [Extended]	
M.PS.03.12 Solve applied problems involving money, length, and time. [Core]	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.
M.PS.03.13 Solve contextual problems about perimeters of rectangles and areas of rectangular regions.[Core]	
	Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures
	3. MD.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 area or with the same area and different perimeter.

CONTENT THAT IS DIFFERENT

	Content moving into 3rd grade
	Geometric measurement: understand concepts of area and relate area to multiplication and to addition
	3. MD.7 Relate area to the operations of multiplication and addition.
	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.

Mathematical Practices

1. Make sense of problems, and persevere in solving them.

2. Reason abstractly and quantitatively.

3. Construct viable arguments, and critique the reasoning of others.

4. Model with mathematics.

5. Use appropriate tools strategically.

6. Attend to precision.

7. Look for, and make use of, structure.

8. Look for, and express regularity in, repeated reasoning.

Michigan Content Expectations	Common Core State Standards
Focal Point	**Critical Area**
Describing properties of two-dimensional shapes and classifying three-dimensional shapes	Describing and analyzing two-dimensional shapes

COMMON CONTENT

Name and explore properties of shapes

G.GS.03.04 Identify, describe, compare, and classify two-dimensional shapes, e.g., parallelogram, trapezoid, circle, rectangle, square, and rhombus, based on their component parts (angles, sides, vertices, line segment) and on the number of sides and vertices.[Core]

Reason with shapes and their attributes

3. G.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.

CONTENT THAT IS DIFFERENT

Content moving out of 3rd grade

Recognize the basic elements of geometric objects

G.GS.03.01 Identify points, line segments, lines, and distance.[Core]

G.GS.03.02 Identify perpendicular lines and parallel lines in familiar shapes and in the classroom.[Core]

G.GS.03.03 Identify parallel faces of rectangular prisms in familiar shapes and in the classroom.[Core]

4th grade
Draw and identify lines and angles, and classify shapes by properties of their lines and angles

4. G.1 Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.

Name and explore properties of shapes

G.SR.03.05 Compose and decompose triangles and rectangles to form other familiar two-dimensional shapes, e.g., form a rectangle using two congruent right triangles, or decompose a parallelogram into a rectangle and two right triangles. [Core]

6th Grade
Solve real-world and mathematical problems involving area, surface area, and volume

6. G.1 Find 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.

Explore and name three-dimensional solids

G.GS.03.06 Identify, describe, build, and classify familiar three-dimensional solids, e.g., cube, rectangular prism, sphere, pyramid, cone, based on their component parts (faces, surfaces, bases, edges, vertices).[Core]

G.SR.03.07 Represent front, top, and side views of solids built with cubes. [Extended]

1st grade
Reason with shapes and their attributes

1. G.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.

Mathematical Practices

1. Make sense of problems, and persevere in solving them.

2. Reason abstractly and quantitatively.

3. Construct viable arguments, and critique the reasoning of others.

4. Model with mathematics.

5. Use appropriate tools strategically.

6. Attend to precision.

7. Look for, and make use of, structure.

8. Look for, and express regularity in, repeated reasoning.

Michigan Content Expectations	Common Core State Standards

Common Core State Standards

2nd grade

Reason with shapes and their attributes

2. G.1 Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.

6th grade

Solve real-world and mathematical problems involving area, surface area, and volume

6. G.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

Focal Point	Critical Area
Developing an understanding of fractions and fraction equivalence	Developing understanding of fractions, especially unit fractions (fractions with numerator 1)[4]

COMMON CONTENT

Understand simple fractions, relation to the whole, and addition and subtraction of fractions

N.ME.03.16 Understand that fractions may represent a portion of a whole unit that has been partitioned into parts of equal area or length; use the terms "numerator" and "denominator." [Core]

N.ME.03.17 Recognize, name, and use equivalent fractions with denominators 2, 4, and 8, using strips as area models.[Core]

N.ME.03.18 Place fractions with denominators of 2, 4, and 8 on the number line; relate the number line to a ruler; compare and order up to three fractions with denominators 2, 4, and 8.[Core]

Develop understanding of fractions as numbers

3. NF.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 $1/b$.

3. NF.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.

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.

3. NF.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.

---

[4] Grade 3 expectations are limited to fractions with denominators 2, 3, 4, 6, and 8.

Michigan Content Expectations	Common Core State Standards

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.

c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. 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.

d. Compare two fractions with the same numerator or the same denominator, by reasoning about their size, Recognize that valid comparisons rely on the two fractions referring 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.

Represent and interpret data

3. MD.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.

Reason with shapes and their attributes

3. G.2 Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. For example, partition a shape into 4 parts with equal area, and describe the area of each part is 1/4 of the area of the shape.

Mathematical Practices

1. Make sense of problems, and persevere in solving them.

2. Reason abstractly and quantitatively.

3. Construct viable arguments, and critique the reasoning of others.

4. Model with mathematics.

5. Use appropriate tools strategically.

6. Attend to precision.

7. Look for, and make use of, structure.

8. Look for, and express regularity in, repeated reasoning.

Michigan Content Expectations	Common Core State Standards

CONTENT THAT IS DIFFERENT

Content moving out of 3rd grade

Understand simple fractions, relation to the whole, and addition and subtraction of fractions

N.ME.03.19 Understand that any fraction can be written as a sum of unit fractions, e.g., 3/4 = 1/4 + 1/4 + 1/4. [Extended]

N.MR.03.20 Recognize that addition and subtraction of fractions with equal denominators can be modeled by joining or taking away segments on the number line. [Extended]

Understand simple decimal fractions in relation to money

N.ME.03.21 Understand and relate decimal fractions to fractional parts of a dollar, e.g., 1/2 dollar = $0.50; 1/4 dollar = $0.25. [Extended]

4th grade
Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.

4. NF.3 Understand a fraction *a/b* with *a* > 1 as a sum of fractions 1/*b*.

   a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.

Understand decimal notation for fractions, and compare decimal fractions

4. NF.6 Use decimal notation for fractions with denominators 10 or 100. For example, rewrite 0.62 as 62/100; describe a length as 0.62 meters; locate 0.62 on a number line diagram.

Connections

COMMON CONTENT

Add and subtract whole numbers

N.FL.03.06 Add and subtract fluently two numbers through 999 with regrouping and through 9,999 without regrouping. [Extended]

N.FL.03.07 Estimate the sum and difference of two numbers with three digits (sums up to 1,000), and judge reasonableness of estimates. [Extended]

N.FL.03.08 Use mental strategies to fluently add and subtract two-digit numbers. [Extended]

Use place value understanding and properties of operations to perform multi-digit arithmetic

3. NBT.1 Use place value understanding to round whole numbers to the nearest 10 or 100.

3. NBT.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. (A range of algorithms may be used.)

Solve problems involving the four operations, and identify and explain patterns in arithmetic

3. OA.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.

1. Make sense of problems, and persevere in solving them.

2. Reason abstractly and quantitatively.

3. Construct viable arguments, and critique the reasoning of others.

4. Model with mathematics.

5. Use appropriate tools strategically.

6. Attend to precision.

7. Look for, and make use of, structure.

8. Look for, and express regularity in, repeated reasoning.

Measure and use units for length, weight, temperature and time

M.UN.03.01 Know and use common units of measurements in length, weight, and time.[Extended]

M.UN.03.02 Measure in mixed units within the same measurement system for length, weight, and time: feet and inches, meters and centimeters, kilograms and grams, pounds and ounces, liters and milliliters, hours and minutes, minutes and seconds, years and months.[Extended]

Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.

3. MD.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. MD.2 Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l)[5]. 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[6].

Use bar graphs

D.RE.03.01 Read and interpret bar graphs in both horizontal and vertical forms.

D.RE.03.02 Read scales on the axes and identify the maximum, minimum, and range of values in a bar graph.

D.RE.03.03 Solve problems using information in bar graphs, including comparison of bar graphs.

Represent and interpret data

3. MD.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. For example, draw a bar graph in which each square in the bar graph might represent 5 sets.

CONTENT THAT IS DIFFERENT

Content moving out of 3rd grade

Understand and use number notation and place value

N.ME.03.01 Read and write numbers to 10,000 in both numerals and words, and relate them to the quantities they represent, e.g., relate numeral or written word to a display of dots or objects. [Extended]

N.ME.03.02 Identify the place value of a digit in a number, e.g., in 3,241, 2 is in the hundreds place. Recognize and use expanded notation for numbers using place value through 9,999, e.g., 2,517 is 2000+ 500+10+ 7; 4 hundreds and 2 ones is 402. [Extended]

N.ME.03.03 Compare and order numbers up to 10,000. [Extended]

2nd Grade
Understand place value

2. NBT.3 Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.

4th Grade
Generalize place value understanding for multi-digit whole numbers

4. NBT.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.

---

[4] Excludes compound units such as cm^3 and finding the geometric volume of a container.

[5] Excludes multiplicative comparison problems (problems involving notions of "times as much."

Michigan Content Expectations	Common Core State Standards
Measure and use units for length, weight, temperature and time	*2nd Grade*
M.UN.03.03 Understand relationships between sizes of standard units, e.g., feet and inches, meters and centimeters. [Extended]	*Measure and estimate lengths in standard units* **2. MD.2** Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.
Measure and use units for length, weight, temperature and time **M.UN.03.04** Know benchmark temperatures such as freezing (32°F, 0°C); boiling (212°F, 100°C); and compare temperatures to these, e.g., cooler, warmer. [Extended – NC]	*No Match in the Common Core*

Mathematical Practices

1. Make sense of problems, and persevere in solving them.

2. Reason abstractly and quantitatively.

3. Construct viable arguments, and critique the reasoning of others.

4. Model with mathematics.

5. Use appropriate tools strategically.

6. Attend to precision.

7. Look for, and make use of, structure.

8. Look for, and express regularity in, repeated reasoning.