# TN State Standards in Mathematics - Grade 4

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Double Plus One

# 4.NBT.A Generalize place value understanding for multi-digit whole numbers.

- 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. For example, recognize that 700 ÷ 70 = 10 by applying concepts of place value and division.
- **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.
- 3. Use place value understanding to round multi-digit whole numbers to any place.

# **4.NBT.B** Use place value understanding and properties of operations to perform multi-digit arithmetic.

- **4**. Fluently add and subtract multi-digit whole numbers using the standard algorithm.
- \*\*NOTE: <sup>2</sup>Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.
- **5.** Multiply a whole number of up to four digits by a one-digit whole number, and multiply two 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.
- **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.

#### -Common Core Sheets.com

4.OA.C5

#### -Engage New York

4.OA.C5: Module 5 Lesson 41

## -Investigations

4.OA.C5: Unit 8 Sessions 1.4, 1.5, 2.4, 2.5, 3.2-3.6; Unit 9 Sessions 2.1-2.8, 3.1-3.3, 3.5

### 4.NBT.A 1-3

- EnVision Topics

1-1, 1-2, 1-3, 1-4

Transitions to CC: Lessons 1-3A

#### -Illustrative Mathematics

4.NBT

Ordering 4-digit Numbers
To Regroup of Not to Regroup

#### -K-5 Math Teaching Resources

4.NBT.1

Place Value Problems

4.NBT.2

Numeral, Word, and Expanded Form

Place Value Triangle

4.NBT.3

Round to the Nearest Ten

Round to the Nearest Hundred

#### -Common Core Sheets.com

4.NBT.A1

4.NBT.A2

4.NBT.A3

#### -Engage New York

4.NBT.A1: Module 1 Lessons 1-4, 11-19, Module 3

Lessons 4-11, 26-33

4.NBT.A2: Module 1 Lessons 1-6, 11-19 4.NBT.A3: Module 1 Lessons 7-10

### -Investigations

4.4.NBT.A1: Unit 5 Sessions 1.1, 3.1, 3.2, 3.6A

4.4.NBT.A2: Unit 5 Sessions 1.1-1.6, 1.5A, 2.1, 2.4-2.6,

3.1-3.6A, 4.1-4.6,

4.4A; Unit 6 Sessions 1.1-1.7; Unit 7 Sessions 3.5A, 3.5B

4.4.NBT.A3: Unit 5 Sessions 1.5A, 3.6A

**NOTE: <sup>2</sup> Grade 4 expectations in this domain are	
limited to whole numbers less than or equal to	<u>4.NBT.B 4-6</u>
1,000,000.	-EnVision Topics
	2-1, 2-2, 2-4, 2-5, 2-6
	Transitions to CC: Lesson 5-6A, 5-8A, 7-4A, 8-3A, 8-3B, 8-3C
	8-8A
	-K-5 Math Teaching Resources
	4.NBT.4
	Adding and Subtracting Multi-digit Numbers
	-Common Core Sheets.com
	4.NBT.B4
	4.NBT.B5
	4.NBT.B6
	-Engage New York
	4.NBT.B4: Module 1 Lessons 11-19
	4.NBT.B5: Module 3 Lessons 4-13, 34-38
	4.NBT.B6: Module 3 Lessons 14-21, 26-33
	-Investigations
	4.NBT.B4: Unit 2 Sessions 1.1-1.3, 2.1, 2.2, 2.4-2.6, 3.5;
	Unit 4 Sessions 1.1-1.6, 2.1-2.6, 3.1-3.5, 4.1-4.7, 4.4A
	4.NBT.B5: Unit 3 Sessions 1.1, 1.3-1.5, 3.1-3.4, 4.1-4.5;
	Unit 8 Sessions 1.2-1.5, 2.1-2.5, 2.4A, 3.1, 3.4-3.6;
	Unit 9 Sessions 2.1, 2.4-2.6, 2.8, 3.3, 3.4
	4.NBT.B6: Unit 3 Sessions 2.1-2.6, 4.1;
	Unit 8 Sessions 3.1-3.4, 3.5A, 3.6;
	Unit 9 Sessions 2.1, 2.2, 2.4-2.6, 2.8, 3.3, 3.4

2 <sup>nd</sup> Nine Weeks		
TN State Standards	Comments	Resources
<ul> <li>4.OA.B Gain familiarity with factors and multiples.</li> <li>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</li> </ul>	* <b>4.0A.B4</b> - this standard will not be tested until TN Ready Part 2. This standard is needed in order to understand the remaining standards in this 9 weeks.	4.OA.B4 -EnVision Topics 8-8; 8-9 -Common Core Sheets.com 4.OA.B4 -Engage New York
in the range 1–100 is prime or composite.  4.NF.A Extend understanding of fraction equivalence and ordering.		4.OA.B4: Module 3 Lessons 22-25  -Investigations 4.OA.B4: Unit 1 Sessions 1.1-1.5, 2.1-2.5, 3.1-3.4; Unit 3 Sessions 1.4, 1.5, 2.1, 2.2, 3.1-3.4
<b>1</b> . 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.		4.NF.A 1-2 -EnVision 10-4, 10-5a, 10-5, 10-7, 10-8, 10-9 Transitions to CC: Lesson 10-5A, -TNCore Tasks Papa's Pizza
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 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.		12 Cookies Star Bar Getting to School  -Illustrative Mathematics Fractions and rectangles Explaining fraction equivalence with pictures http://www.illustrativemathematics.org/illustrations/743Lis ting fractions in increasing size Doubling numerators and denominators
**NOTE: <sup>3</sup> Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.  4.NF.B Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.  3. Understand a fraction a/b with a > 1 as a sum of fractions 1/b.		-Inside Mathematics Picking Fractions  -Tasks Farmer Fred Fraction activities and tasks Cake Task  -Common Core Sheets.com 4.NF.A1 4.NF.A2

- **a.** Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.
- **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. Examples: 3/8 = 1/8 + 1/8 + 1/8; 3/8 = 1/8 + 2/8; 21/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8.
- \*\*NOTE: <sup>3</sup>Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.
- **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. For example, use a visual fraction model to represent 5/4 as the product  $5 \times (1/4)$ , recording the conclusion by the equation  $5/4 = 5 \times (1/4)$ .
- **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. 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,  $n \times (a/b) = (n \times a)/b$ .)
- **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. 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?
- \*\*NOTE: <sup>3</sup> Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.

# 4.NF.C Understand decimal notation for fractions, and compare decimal fractions.

**5**. Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective

#### -Engage New York

4.NF.A1: Module 5 Lessons 7-11, 16-26 4.NF.A2: Module 5 Lessons 12-15, 22-26

#### -Investigations

4.NF.A1: Unit 6 Sessions 1.1, 1.5, 2.1, 2.3, 2.5, 2.6 4.NF.A2: Unit 6 Sessions 1.7, 2.1-2.6, 3.7

# 4.NF.B 3-4

#### -EnVision Topics

10-1, 10-2, 11-1a, 11-1, 11-4, 11-5 Transitions to CC: Lesson 11-1A, 11-5A, 11-5B, 11-5C, 11-5D, 11-5E, 11-5F

# -TNCore.org

Closer to 1
4.NF.B.3.a Papa's Pizza Task
Salty Pretzel
Chocolate Chips (

#### -Illustrative Mathematics

4.NF

Comparing Sums of Unit Fractions
Making 22/17 in Different Ways
Comparing Two Different Pizzas

#### -Inside Mathematics

4.NF.B.3a Leapfrog Fractions

## -K-5 Math Teaching Resources

4.NF.B.3a

Adding and Subtracting Fractions
Adding Fractions Using Pattern Blocks
The Chocolate Bar Problem
Sense or Nonsense? #1
Sense or Nonsense? #2
4.NF.B.3b

Decomposing Fractions

Pizza Share

#### -Common Core Sheets.com

4.NF.B3a 4.NF.B3b 4.NF.B3c

4.NF.B4a

4.NF.B4b

4.NF.B4c

denominators 10 and 100. <sup>4</sup> For example, express 3/10 as 30/100, and add 3/10 + 4/100 = 34/100.

- \*\*NOTE: <sup>4</sup>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.
- **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.
- **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.
- \*\*NOTE: <sup>3</sup>Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.

#### -Engage New York

4.NF.B3: Module 5 Lessons 1-11, 16-34 4.NF.B4: Module 5 Lessons 1-6, 22-26, 36-40

#### -Investigations

4.NF.B3a: Unit 6 Sessions 1.1, 1.2, 1.5-1.7, 1.8A, 2.5

4.NF.B3b: Unit 6 Sessions 1.1, 1.2, 1.6

4.NF.B3c: Unit 6 Sessions 2.7A

4.NF.B3d: Unit 6 Sessions 1.3, 1.4, 1.8A 4.NF.B4a: Unit 6 Sessions 3A.1, 3A.2, 3A.3 4.NF.B4b: Unit 6 Sessions 3A.1, 3A.2, 3A.3 4.NF.B4c: Unit 6 Sessions 3A.1, 3A.2, 3A.3

## 4.NF.C 5-7

#### -EnVision

1-7a, 11-4, 12-1, 12-2, 12-3, 12-4, 12-5, 12-5a, 12-6, 13-7 Transitions to CC: Lesson 12-5A

#### -Illustrative Mathematics

Adding tenths and hundredths
Fraction equivalence
Expanded form

# -K-5 Math Teaching Resources

Sums of One
Measurement Problems
Conversion Word Problems

#### -Howard County

4.NF.C.6 activities 4.NF.C.6 assessments 4.NF.C.7 assessments

# -Georgia Unit Frameworks

4.NF.C.5, 4.NF.C.6, 4.NF.C.7 Unit 5

### -Common Core Sheets.com

4.NF.C5 4.NF.C6 4.NF.C7

#### -Engage New York

4.NF.C5: Module 5 Lesson 41, Module 6 Lessons 4-8, 12, 15-16

4.NF.C6: Module 6 Lessons 1-8, 12, 15-16

4.NF.C7: Module 6 Lessons 4-11

-Investigations	
4.NF.C5: Unit 6 Sessions 3.1, 3.3	
4.NF.C6: Unit 6 Sessions 3.1-3.3	
4.NF.C7: Unit 6 Sessions 3.1-3.7; Unit 7 Sessions 3	3.1, 3.2

3 <sup>rd</sup> Nine Weeks		
TN State Standards	Comments	Resources
4.G.A - Draw and identify lines and angles, and classify shapes by properties of their lines and angles.  1 - Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.	*Standards taught in 3 <sup>rd</sup> 9 weeks are not tested until Part 2 of the TN Ready test. * Include review time for Part 1 TN Ready testing	4.G.A 1-3 EnVision 9-1, 9-2, -Illustrative Mathematics 4.G.A.1 Measuring Angles
<b>2-</b> 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.		-Common Core Sheets.com 4.G.A1 4.G.A2  -Engage New York 4.G.A1: Module 4 Lessons 1-4, 12-16 4.G.A2: Module 4 Lessons 12-16
<b>3-</b> 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.A3: Module 4 Lessons 12-16  -Investigations  4.G.A1: Unit 4 Sessions 2.1-2.5, 2.3A, 3.4A, 4.7  4.G.A2: Unit 4 Sessions 2.1, 2.3A, 2.3-2.5, 4.1-4.4, 4.7  4.G.A3: Unit 4 Sessions 4.1-4.4, 4.6
4.MD.C- Geometric measurement: understand concepts of angle and measure angles.		4.MD.C 5-7 -EnVision 9-3, 9-3a, 9-3b, 9-4a Transitions to CC: Lesson 9-3A. 9-3B, 9-4A
<b>5-</b> Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement:		-Gheens Academy 4.MD.5 Measuring Angles using a Protractor 4.MD.5 Angles in Names
<b>a</b> . 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 1/360 of a circle is called a "one-		4.MD.5 Marshmallow Angles 4.MD.5 Finding Angles in Pizza 4.MD.6 Predicting and Measuring Angles 4.MD.6 Angles in Triangles -Illustrative Mathematics
degree angle," and can be used to measure angles. <b>b</b> . An angle that turns through one-degree angles is said to have an angle measure of n degrees.		-Common Core Sheets.com  4.MD.C5a
<b>6-</b> Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.		4.MD.C6 4.MD.C7  -Engage New York
		4.MD.C5: Module 4 Lessons 5-8 4.MD.C6: Module 4 Lessons 5-8

**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.

4.MD.C7: Module 4 Lessons 9-11

# -Investigations

4.MD.C5a: Unit 4 Sessions 2.3A, 3.4A 4.MD.C5b: Unit 4 Sessions 3.4A 4.MD.C6: Unit 4 Sessions 3.1-3.3, 3.4A 4.MD.C7: Unit 4 Sessions 3.1-3.3

Unit 5 Sessions 1.4-1.6, 2.1-2.3, 3.4, 3.5, 4.5, 4.6;
Unit 6 Sessions 3.1, 3.4-3.6; Unit 7 Sessions 3.5B;
Unit 8 Sessions 2.1, 2.4A, 3.1, 3.5
4.MD.A3: Unit 4 Sessions 1.1, 1.3-1.5, 2.3, 4.1-4.7
4.MD.B 4
-EnVision
17-1, 17-2, 17-3, 17-5, 17-9, 17-10
Transitions to CC: Lesson 17-4A
-Inside Mathematics
4.MD.B.4 Button Diameters
-Gheens Academy
4.MD.4 Objects In My Desk Line Plot
-Engage New York
4.MD.B4: Module 5 Lessons 22-40
-Investigations
4.MD.B4: Unit 6 Sessions 2.7A; Unit 9 Sessions 3.1, 3.2