

## **Grade 4 Math**

**Board Approval Date: 8/28/2017**



**NORTHAMPTON AREA  
SCHOOL DISTRICT**

*Learn, Listen, and Lead*

### **Topic: 1 Generalize Place Value Understanding**

#### **Topic Overview:**

- Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.
- Generalize place value understanding for multi-digit whole numbers.

#### **Standards:**

CC.2.1.4.B.1

- Apply place-value concepts to show an understanding of multi-digit whole numbers.

#### **Eligible Content:**

##### **M04.A-T.1.1.1**

- Demonstrate an understanding that in a multi-digit whole number (through 1,000,000), a digit in one place represents ten times what it represents in the place to its right.

##### **M04.A-T.1.1.2**

- Read and write whole numbers in expanded, standard, and word form through 1,000,000.

##### **M04.A-T.1.1.3**

- Compare two multi-digit numbers through 1,000,000 based on meanings of the digits in each place, using  $>$ ,  $=$ , and  $<$  symbols

##### **M04.A-T.1.1.4**

- Round multi-digit whole numbers (through 1,000,000) to any place.

#### **Essential Questions (Core Concepts):**

1. How are greater numbers written?
2. How can whole numbers be compared?
3. How are place values related?

#### **Objectives (Skills/Knowledge):**

- Read and write numbers in expanded form, with numerals, and using number names.
- Recognize the relationship between adjacent digits in a multi-digit number
- Use place value to compare multi-digit numbers.
- Use place value to round multi-digit numbers.
- Use previously learned concepts and skills to construct arguments about place values.

#### **Vocabulary:**

- Place-value
- Millions
- Period
- Expanded form
- Greater than symbol ( $>$ )
- Less than symbol ( $<$ )
- Rounding
- Conjecture

**Activities/Strategies/Study Skills:**

- Math and Science Project (advanced)
- S.L.O.T.
- Review What You Know
- Daily Common Core Review
- Today's Challenge
- Solve and Share
- Practice Buddy (online)
- Math Games (online)
- Another Look Video (intervention)
- Reteach Worksheet (intervention)
- Math and Science Activity (on level and advanced)
- Leveled Homework
- Intervention Activities
- Problem Solving Reading Mat (on level and advanced)
- On-Level and Advanced Activity Centers
- Math Practices and Problem Solving Pages
- Fluency Practice Activity
- Vocabulary Review
- Reteach for Understanding
- Math Diagnosis and Intervention System 2.0 (remedial)
- ELL Toolkit

**Assessments:**

- District Created Topic 1 Assessment
- On-going formative assessment

**Additional Resources:**

- NASD Grade 4 Math Curriculum and Assessment Handbook

**Topic 2: Fluently Add and Subtract Multi-Digit Whole Numbers****Topic Overview:**

- Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.

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

**Standards:**

CC.2.1.4.B.2

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

CC.2.2.4.A.2

- Develop and/or apply number theory concepts to find factors and multiple.

**Eligible Content:**

**M04.A-T.2.1.1**

- Add and subtract multi-digit whole numbers (limit sums and subtrahends up to and including 1,000,000).

**M04.A-T.2.1.2**

- Multiply a whole number of up to four digits by a one-digit whole number and multiply 2 two-digit numbers.

**M04.A-T.2.1.3**

- Divide up to four-digit dividends by one-digit divisors with answers written as whole-number quotients and remainders.

**M04.A-T.2.1.4**

- Estimate the answer to addition, subtraction, and multiplication problems using whole numbers through six digits (for multiplication, no more than 2 digits  $\times$  1 digit, excluding powers of 10).

**M04.B-O.1.1.1**

- Interpret a multiplication equation as a comparison. Represent verbal statements of multiplicative comparisons as multiplication equations.

**M04.B-O.1.1.2**

- Multiply or divide to solve word problems involving multiplicative comparison, distinguishing multiplicative comparison from additive comparison.

**M04.B-O.1.1.3**

- Solve multi-step word problems posed with whole numbers using the four operations. Answers will be either whole numbers or have remainders that must be interpreted yielding a final answer that is a whole number. Represent these problems using equations with a symbol or letter standing for the unknown quantity.

**M04.B-O.1.1.4**

- Identify the missing symbol (+, −,  $\times$ ,  $\div$ , =, <, and >) that makes a number sentence true (single-digit divisor only).

**Essential Questions (Core Concepts):**

1. How can sums and differences of whole numbers be estimated?
2. What are standard procedures for adding and subtracting whole numbers?

**Objectives (Skills/Knowledge):**

Add and subtract whole numbers fluently using a variety of methods.

- Round greater whole numbers to estimate sums and differences.
- Add numbers to one million with and without regrouping using the standard algorithm.
- Use place value and an algorithm to subtract whole numbers.
- Use number sense and regrouping to subtract across zeros.
- Use previously learned concepts and skills to reason abstractly and make sense of quantities and the relationships in problem situations.

**Vocabulary:**

- Commutative Property of Addition
- Associative Property of Addition
- Identity Property of Addition
- Counting On
- Compensation
- Variable
- Algorithm
- Inverse operations

**Activities/Strategies/Study Skills:**

- Math and Science Project (advanced)
- S.L.O.T.
- Review What You Know
- Daily Common Core Review
- Today's Challenge
- Solve and Share
- Practice Buddy (online)
- Math Games (online)
- Another Look Video (intervention)
- Reteach Worksheet (intervention)
- Math and Science Activity (on level and advanced)
- Leveled Homework
- Intervention Activities
- Problem Solving Reading Mat (on level and advanced)
- On-Level and Advanced Activity Centers
- Math Practices and Problem Solving Pages
- Fluency Practice Activity
- Vocabulary Review
- Reteach for Understanding
- Math Diagnosis and Intervention System 2.0 (remedial)
- ELL Toolkit

**Assessments:**

District Created Topic 2 Assessment  
On-going formative assessment

**Additional Resources:**

- NASD Grade 4 Math Curriculum and Assessment Handbook



### Topic 3: Use Strategies and Properties to Multiply by 1-Digit Numbers

#### Topic Overview:

- Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.
- Use place value understanding and properties of operations to perform multi-digit arithmetic.

#### Standards:

CC.2.2.4.A.2

- Develop and/or apply number theory concepts to find factors and multiple.

#### Eligible Content:

##### M04.B-O.1.1.1

- Interpret a multiplication equation as a comparison. Represent verbal statements of multiplicative comparisons as multiplication equations.

##### M04.B-O.1.1.2

- Multiply or divide to solve word problems involving multiplicative comparison, distinguishing multiplicative comparison from additive comparison.

##### M04.B-O.1.1.3

- Solve multi-step word problems posed with whole numbers using the four operations. Answers will be either whole numbers or have remainders that must be interpreted yielding a final answer that is a whole number. Represent these problems using equations with a symbol or letter standing for the unknown quantity.

##### M04.B-O.1.1.4

- Identify the missing symbol (+, −, ×, ÷, =, <, and >) that makes a number sentence true (single-digit divisor only).

#### Essential Questions (Core Concepts):

1. How can you multiply by multiples of 10, 100, and 1,000?
2. How can you estimate when you multiply?

#### Objectives (Skills/Knowledge):

- Multiply multiples of 10, 100, and 1,000 using mental math and place-value strategies.
- Use rounding to estimate products and check if answers are reasonable.
- Use the Distributive Property to multiply larger numbers.
- Use place value and properties of operations to multiply mentally.
- Use arrays and partial products to multiply 3- and 4-digit numbers by 1-digit numbers.
- Use place value and partial products to multiply 3- and 4-digit numbers by 1-digit numbers.
- Use place value and partial products to multiply 3- and 4-digit numbers by 1-digit numbers.
- Use place value and the standard algorithm to multiply 2-, 3-, and 4-digit numbers by 1-digit numbers. Estimate to check.
- Use previously learned concepts and skills to represent and solve problems.

#### Vocabulary:

- Associative Property of Multiplication
- Numerical expression
- Distributive Property
- Compensation

- Commutative Property of Multiplication
- Partial Products

**Activities/Strategies/Study Skills:**

- Math and Science Project (advanced)
- S.L.O.T.
- Review What You Know
- Daily Common Core Review
- Today's Challenge
- Solve and Share
- Practice Buddy (online)
- Math Games (online)
- Another Look Video (intervention)
- Reteach Worksheet (intervention)
- Math and Science Activity (on level and advanced)
- Leveled Homework
- Intervention Activities
- Problem Solving Reading Mat (on level and advanced)
- On-Level and Advanced Activity Centers
- Math Practices and Problem Solving Pages
- Fluency Practice Activity
- Vocabulary Review
- Reteach for Understanding
- Math Diagnosis and Intervention System 2.0 (remedial)
- ELL Toolkit

**Assessments:**

District Created Topic 3 Quiz

District Created Topic 3 Assessment

On-going formative assessment

**Additional Resources:**

- NASD Grade 4 Math Curriculum and Assessment Handbook

## **Topic 4: Use Strategies and Properties to Multiply by 2-Digit Numbers**

### **Topic Overview:**

- Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.
- Use place value understanding and properties of operations to perform multi-digit arithmetic.

### **Standards:**

CC.2.1.4.B.2

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

CC.2.2.4.A.2

- Develop and/or apply number theory concepts to find factors and multiple.

### **Eligible Content:**

#### **M04.A-T.2.1.1**

- Add and subtract multi-digit whole numbers (limit sums and subtrahends up to and including 1,000,000).

#### **M04.A-T.2.1.2**

- Multiply a whole number of up to four digits by a one-digit whole number and multiply 2 two-digit numbers.

#### **M04.A-T.2.1.3**

- Divide up to four-digit dividends by one-digit divisors with answers written as whole-number quotients and remainders.

#### **M04.A-T.2.1.4**

- Estimate the answer to addition, subtraction, and multiplication problems using whole numbers through six digits (for multiplication, no more than 2 digits  $\times$  1 digit, excluding powers of 10).

#### **M04.B-O.1.1.1**

- Interpret a multiplication equation as a comparison. Represent verbal statements of multiplicative comparisons as multiplication equations.

#### **M04.B-O.1.1.2**

- Multiply or divide to solve word problems involving multiplicative comparison, distinguishing multiplicative comparison from additive comparison.

#### **M04.B-O.1.1.3**

- Solve multi-step word problems posed with whole numbers using the four operations. Answers will be either whole numbers or have remainders that must be interpreted yielding a final answer that is a whole number. Represent these problems using equations with a symbol or letter standing for the unknown quantity.

#### **M04.B-O.1.1.4**

- Identify the missing symbol ( $+$ ,  $-$ ,  $\times$ ,  $\div$ ,  $=$ ,  $<$ , and  $>$ ) that makes a number sentence true (single-digit divisor only).

### **Essential Questions (Core Concepts):**

1. How can you use a model to multiply?
2. How can you use the Distributive Property to multiply?
3. How can you use multiplication to solve problems?

### **Objectives (Skills/Knowledge):**

- Use mental-math strategies to multiply 2-digit by 2-digit multiples of ten.



- Use models and properties of operations to multiply 2-digit numbers by multiples of ten.
- Estimate products for 2-digit by 2-digit multiplication problems by rounding to multiples of ten.
- Use compatible numbers to estimate products of 2-digit by 2-digit multiplication problems.
- Use arrays, place value, partial products, and properties of operations to multiply two 2-digit numbers.
- Use the Distributive Property and an area model to multiply two 2-digit numbers.
- Use place value and partial products to calculate products of 2-digit by 2-digit multiplication problems.
- Use area models and place-value strategies to multiply 2-digit numbers by multiples of ten.
- Use the expanded and standard algorithm to multiply 2-digit by 2-digit numbers. Estimate to check if answers are reasonable.
- Use models and algorithms to solve 2-digit by 2-digit multiplication problems.
- Make sense of problems and persevere in solving them.

**Vocabulary:**

- Compatible numbers.

**Activities/Strategies/Study Skills:**

- Math and Science Project (advanced)
- S.L.O.T.
- Review What You Know
- Daily Common Core Review
- Today's Challenge
- Solve and Share
- Practice Buddy (online)
- Math Games (online)
- Another Look Video (intervention)
- Reteach Worksheet (intervention)
- Math and Science Activity (on level and advanced)
- Leveled Homework
- Intervention Activities
- Problem Solving Reading Mat (on level and advanced)
- On-Level and Advanced Activity Centers
- Math Practices and Problem Solving Pages
- Fluency Practice Activity
- Vocabulary Review
- Reteach for Understanding
- Math Diagnosis and Intervention System 2.0 (remedial)
- ELL Toolkit

**Assessments:**

District Created Topic 4 Quiz

District Created Topic 4 Assessment

On-going formative assessment

**Additional Resources:**

- NASD Grade 4 Math Curriculum and Assessment Handbook

## **Topic 5: Use Strategies and Properties to Divide by 1-Digit Numbers**

### **Topic Overview:**

- Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.
- Use place value understanding and properties of operations to perform multi-digit arithmetic.

### **Standards:**

CC.2.2.4.A.1

- Represent and solve problems involving the four operations.

### **Eligible Content:**

#### **M04.B-O.1.1.1**

- Interpret a multiplication equation as a comparison. Represent verbal statements of multiplicative comparisons as multiplication equations.

#### **M04.B-O.1.1.2**

- Multiply or divide to solve word problems involving multiplicative comparison, distinguishing multiplicative comparison from additive comparison.

#### **M04.B-O.1.1.3**

- Solve multi-step word problems posed with whole numbers using the four operations. Answers will be either whole numbers or have remainders that must be interpreted yielding a final answer that is a whole number. Represent these problems using equations with a symbol or letter standing for the unknown quantity.

#### **M04.B-O.1.1.4**

- Identify the missing symbol (+, −, ×, ÷, =, <, and >) that makes a number sentence true (single-digit divisor only).

### **Essential Questions (Core Concepts):**

1. How can mental math be used to divide?
2. How can quotients be estimated?
3. How can the steps for dividing be explained?

### **Objectives (Skills/Knowledge):**

- Use mental math and place-value strategies to divide multiples of 10 and 100 by 1-digit divisors.
- Use compatible numbers to estimate quotients.
- Use place-value patterns and division facts to estimate quotients for 4-digit dividends.
- Solve division problems and interpret remainders.
- Use place value and drawings to divide 2- and 3-digit numbers by 1-digit numbers.
- Use partial quotients to divide.
- Use partial quotients and place-value understandings to divide with greater dividends.
- Divide 2-, 3-, and 4-digit numbers by 1-digit numbers using the standard division algorithm.
- Use previously learned concepts and skills to model and solve problems.

### **Vocabulary:**

- Remainder
- Partial quotients

**Activities/Strategies/Study Skills:**

- Math and Science Project (advanced)
- S.L.O.T.
- Review What You Know
- Daily Common Core Review
- Today's Challenge
- Solve and Share
- Practice Buddy (online)
- Math Games (online)
- Another Look Video (intervention)
- Reteach Worksheet (intervention)
- Math and Science Activity (on level and advanced)
- Leveled Homework
- Intervention Activities
- Problem Solving Reading Mat (on level and advanced)
- On-Level and Advanced Activity Centers
- Math Practices and Problem Solving Pages
- Fluency Practice Activity
- Vocabulary Review
- Reteach for Understanding
- Math Diagnosis and Intervention System 2.0 (remedial)
- ELL Toolkit

**Assessments:**

District Created Topic 5 Assessment

On-going formative assessment

**Additional Resources:**

- NASD Grade 4 Math Curriculum and Assessment Handbook

## **Topic 6: Use Operations with Whole Numbers to Solve Problems**

### **Topic Overview:**

- Mathematical relationships can be represented as expressions, equations, and inequalities, in mathematical situations.
- Use place value understanding and properties of operations to perform multi-digit arithmetic.

### **Standards:**

CC.2.2.4.A.1

- Represent and solve problems involving the four operations.

### **Eligible Content:**

#### **M04.B-O.1.1.1**

- Interpret a multiplication equation as a comparison. Represent verbal statements of multiplicative comparisons as multiplication equations.

#### **M04.B-O.1.1.2**

- Multiply or divide to solve word problems involving multiplicative comparison, distinguishing multiplicative comparison from additive comparison.

#### **M04.B-O.1.1.3**

- Solve multi-step word problems posed with whole numbers using the four operations. Answers will be either whole numbers or have remainders that must be interpreted yielding a final answer that is a whole number. Represent these problems using equations with a symbol or letter standing for the unknown quantity.

#### **M04.B-O.1.1.4**

- Identify the missing symbol (+, −, ×, ÷, =, <, and >) that makes a number sentence true (single-digit divisor only).

### **Essential Questions (Core Concepts):**

1. How is comparing with multiplication different from comparing with addition?
2. How can you use equations to solve multi-step problems?

### **Objectives (Skills/Knowledge):**

- Interpret comparisons as multiplication or addition equations.
- Use multiplication and division to compare quantities.
- Solve two-step problems by finding and solving the hidden question first.
- Solve multi-step problems by finding and solving hidden questions first.
- Make sense of multistep problem and keep working until it is solved.

### **Vocabulary:**

### **Activities/Strategies/Study Skills:**

- Math and Science Project (advanced)
- S.L.O.T.
- Review What You Know
- Daily Common Core Review
- Today's Challenge
- Solve and Share

- Practice Buddy (online)
- Math Games (online)
- Another Look Video (intervention)
- Reteach Worksheet (intervention)
- Math and Science Activity (on level and advanced)
- Leveled Homework
- Intervention Activities
- Problem Solving Reading Mat (on level and advanced)
- On-Level and Advanced Activity Centers
- Math Practices and Problem Solving Pages
- Fluency Practice Activity
- Vocabulary Review
- Reteach for Understanding
- Math Diagnosis and Intervention System 2.0 (remedial)
- ELL Toolkit

**Assessments:**

District Created Topic 6 Assessment

On-going formative assessment

**Additional Resources:**

- NASD Grade 4 Math Curriculum and Assessment Handbook

## **Topic 7: Factors and Multiples**

### **Topic Overview:**

- Mathematical relationships among numbers can be represented, compared, and communicated.
- Gain familiarity with factors and multiples.

### **Standards:**

CC.2.2.4.A.2

- Develop and/or apply number theory concepts to find factors and multiples.

### **Eligible Content:**

#### **M04.B-O.2.1.1**

- Find all factor pairs for a whole number in the interval 1 through 100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the interval 1 through 100 is a multiple of a given one digit number. Determine whether a given whole number in the interval 1 through 100 is prime or composite.

### **Essential Questions (Core Concepts):**

1. How can you use arrays or multiplication to find the factors of a number?
2. How can you identify prime and composite numbers?
3. How can you find multiples of a number?

### **Objectives (Skills/Knowledge):**

- Use arrays to find the factors of a given whole number.
- Use multiplication to find all the factor pairs of a whole number
- Use repeated reasoning to generalize how to solve problems that are similar.
- Use factors to determine whether a whole number greater than 1 is prime or composite.
- Use multiplication to find multiples of a given number

### **Vocabulary:**

- Factor
- Factor pairs
- Multiple
- Generalize
- Prime number
- Composite number

### **Activities/Strategies/Study Skills:**

- Math and Science Project (advanced)
- S.L.O.T.
- Review What You Know
- Daily Common Core Review
- Today's Challenge
- Solve and Share
- Practice Buddy (online)
- Math Games (online)
- Another Look Video (intervention)

- Reteach Worksheet (intervention)
- Math and Science Activity (on level and advanced)
- Leveled Homework
- Intervention Activities
- Problem Solving Reading Mat (on level and advanced)
- On-Level and Advanced Activity Centers
- Math Practices and Problem Solving Pages
- Fluency Practice Activity
- Vocabulary Review
- Reteach for Understanding
- Math Diagnosis and Intervention System 2.0 (remedial)
- ELL Toolkit

**Assessments:**

District Created Topic 7 Assessment

On-going formative assessment

**Additional Resources:**

- NASD Grade 4 Math Curriculum and Assessment Handbook



## **Topic 8: Extend Understanding of Fraction Equivalence and Ordering**

### **Topic Overview:**

- Patterns exhibit relationships that can be extended, described, and generalized.
- Extend understanding of fraction equivalence and ordering

### **Standards:**

CC.2.1.4.C.1

- Extend the understanding of fractions to show equivalence of ordering

### **Eligible Content:**

#### **M04.A-F.1.1.1**

- Recognize and generate equivalent fractions.

#### **M04A-F.1.1.2**

- Compare two fractions with different numerators and different denominators (denominators limited to 2, 3, 4, 5, 6, 8, 10, 12, and 100) using the symbols  $>$ ,  $=$ , or  $<$  and justify the conclusions.

### **Essential Questions (Core Concepts):**

1. What are some ways to name the same part of a whole?
2. How can you compare fractions with unlike denominators?

### **Objectives (Skills/Knowledge):**

- Use area models to recognize and generate equivalent fractions.
- Use a number line to locate and identify equivalent fractions.
- Use multiplication to find equivalent fractions.
- Use division to find equivalent fractions.
- Use benchmarks, area models, and number lines to compare fractions.
- Use models or rename fractions to compare.
- Construct arguments about fractions.

### **Vocabulary:**

- Equivalent fractions
- Fractions
- Numerator
- Denominator
- Common factor
- Benchmark fraction

### **Activities/Strategies/Study Skills:**

- Math and Science Project (advanced)
- S.L.O.T.
- Review What You Know
- Daily Common Core Review
- Today's Challenge
- Solve and Share
- Practice Buddy (online)
- Math Games (online)

- Another Look Video (intervention)
- Reteach Worksheet (intervention)
- Math and Science Activity (on level and advanced)
- Leveled Homework
- Intervention Activities
- Problem Solving Reading Mat (on level and advanced)
- On-Level and Advanced Activity Centers
- Math Practices and Problem Solving Pages
- Fluency Practice Activity
- Vocabulary Review
- Reteach for Understanding
- Math Diagnosis and Intervention System 2.0 (remedial)
- ELL Toolkit

**Assessments:**

District created Topic 8 Assessment

On-going formative assessment

**Additional Resources:**

- NASD Grade 4 Math Curriculum and Assessment Handbook

## **Topic 9: Understand Addition and Subtraction of Fractions**

### **Topic Overview:**

- Patterns exhibit relationships that can be extended, described, and generalized.
- Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.

### **Standards:**

CC.2.1.4.C.2

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

### **Eligible Content:**

#### **M04.A-F.2.1.1**

- Add and subtract fractions with a common denominator

#### **M04.A-F.2.1.2**

- Decompose a fraction or a mixed number into a sum of fractions with the same denominator (denominator limited to 2,3,4,5,6,8,10,12 and 100)

#### **M04.A-F.2.1.3**

- Add and subtract mixed numbers with a common denominator (denominator limited to 2,3,4,5,6,8,10,12 and 100) final answers do not need to be simplified or written as a mixed number

#### **M04.A-F.2.1.4**

- Solve word problems involving addition and subtraction of fractions referring to the same whole or set and having like denominators (denominators limited to 2,3,4,5,6,8,10,12,and 100)

#### **M04.A-F.2.1.5**

- Multiply a whole number by a unit fraction (denominator limited to 2,3,4,5,6,8,10,12,and 100) final answers do not need to be simplified or written as a mixed number.

#### **M04.A-F.2.1.6**

- Multiply a whole number by a non-unit fraction(denominator limited to 2,3,4,5,6,8,10,12,and 100) final answers do not need to be simplified or written as a mixed number.

#### **M04.A-F.2.1.7**

- Solve word problems involving multiplication of a whole number by a fraction (denominator limited to 2,3,4,5,6,8,10,12,and 100) final answers do not need to be simplified or written as a mixed number)

### **Essential Questions (Core Concepts):**

1. How do you add and subtract fractions and mixed numbers with like denominators?
2. How can fractions be added and subtracted on a number line?

### **Objectives (Skills/Knowledge):**

- Use fraction strips and number lines to add fractions.
- Decompose a fraction or mixed number into a sum of fractions in more than one way.
- Solve problems involving joining parts of the same whole by adding fractions.
- Use tools such as fraction strips, area models, and number lines to subtract fractions.
- Solve problems involving separating parts of the same whole by subtracting fractions.
- Count forward and backward on a number line to add or subtract.
- Use number lines and benchmark fractions to estimate fraction sums and differences.

- Use models and equivalent fractions to add and subtract mixed numbers.
- Use equivalent fractions and properties of operations to add mixed numbers with like denominators.
- Use equivalent fractions, properties of operations, and the relationship between addition and subtraction to subtract mixed numbers with like denominators.
- Use previously learned concepts and skills to represent and solve problems.

**Vocabulary:**

- Decompose
- Compose
- Mixed number

**Activities/Strategies/Study Skills:**

- Math and Science Project (advanced)
- S.L.O.T.
- Review What You Know
- Daily Common Core Review
- Today's Challenge
- Solve and Share
- Practice Buddy (online)
- Math Games (online)
- Another Look Video (intervention)
- Reteach Worksheet (intervention)
- Math and Science Activity (on level and advanced)
- Leveled Homework
- Intervention Activities
- Problem Solving Reading Mat (on level and advanced)
- On-Level and Advanced Activity Centers
- Math Practices and Problem Solving Pages
- Fluency Practice Activity
- Vocabulary Review
- Reteach for Understanding
- Math Diagnosis and Intervention System 2.0 (remedial)
- ELL Toolkit

**Assessments:**

District created Topic 9 Assessment  
On-going formative assessment

**Additional Resources:**

- NASD Grade 4 Math Curriculum and Assessment Handbook

**Topic 10: Extend Multiplication Concepts to Fractions**

**Topic Overview:**

- Patterns exhibit relationships that can be extended, described, and generalized.

- Build fractions from unit fractions by applying and extending previous understandings of operations on whole number.

**Standards:**

CC.2.2.4.A.1

- Represent and solve problems involving the four questions.

**Eligible Content:**

**M04.B-O1.1.1**

- Interpret a multiplication equation as a comparison. Represent verbal statements of multiplicative comparisons as multiplication equations.

**M04.B-O.1.1.2**

- Multiply or divide to solve word problems involving multiplicative comparison, distinguishing multiplicative comparison from additive comparison.

**M04.B-O.1.1.3**

- Solve multi-step word problems posed with whole numbers using the four operations. Answers will be either whole numbers or have remainders that must be interpreted yielding a final answer that is a whole number. Represent these problems using equations with a symbol or letter standing for the unknown quantity

**M04.B-O1.1.4**

- Identify the missing symbol (+, −, ×, ÷, =, <, and >) that makes a number sentence true (single-digit divisor only).

**Essential Questions (Core Concepts):**

1. How can you describe a fraction using a unit fraction?
2. How can you multiply a whole number by a mixed number?

**Objectives (Skills/Knowledge):**

- Use a model to understand a fraction as a multiple of unit fraction.
- Use models to multiply fractions by whole numbers.
- Use symbols and equations to multiply a fraction by a whole number.
- Use drawings and equations to represent and solve problems involving multiplying a whole number and a mixed number.
- Use the four operations to solve problems involving time.
- Use previously learned concepts and skills to represent and solve problems.

**Vocabulary:**

- Unit fraction

**Activities/Strategies/Study Skills:**

- Math and Science Project (advanced)
- S.L.O.T.
- Review What You Know
- Daily Common Core Review
- Today's Challenge
- Solve and Share

- Practice Buddy (online)
- Math Games (online)
- Another Look Video (intervention)
- Reteach Worksheet (intervention)
- Math and Science Activity (on level and advanced)
- Leveled Homework
- Intervention Activities
- Problem Solving Reading Mat (on level and advanced)
- On-Level and Advanced Activity Centers
- Math Practices and Problem Solving Pages
- Fluency Practice Activity
- Vocabulary Review
- Reteach for Understanding
- Math Diagnosis and Intervention System 2.0 (remedial)
- ELL Toolkit

**Assessments:**

District created Topic 10 Assessment

On-going formative assessment

**Additional Resources:**

- NASD Grade 4 Math Curriculum and Assessment Handbook

## **Topic 11: Represent and Interpret Data on Line Plots**

### **Topic Overview:**

- Mathematical relations and functions can be modeled through multiple representations and analyzed to raise and answer questions
- Represent and interpret data.

### **Standards:**

CC.2.4.A.2

- Translate information from one type of data display to another.

CC.2.4.4.A.4

- Represent and interpret data involving fractions using information provided in a line plot.

### **Eligible Content:**

**M04.D-M.2.1.1**

- Make a line plot to display a data set of measurements in fractions of a unit.

**M04.D-M.2.1.2**

- Solve problems involving addition and subtraction of fractions by using information presented in line plots (line plots must be labeled with common denominators, such as  $\frac{1}{4}$ ,  $\frac{2}{4}$ ,  $\frac{3}{4}$ ).

**M04.D-M.2.1.3:**

- Translate information from one type of display to another (table, chart, bar graph, or pictograph)

### **Essential Questions (Core Concepts):**

1. How can you read data on a line plot? How can you make a line plot?

### **Objectives (Skills/Knowledge):**

- Read and interpret data using plots.
- Represent data using line plots and interpret data in line plots to solve problems.
- Solve problems involving line plots and fractions.
- Critique the reasoning of others using an understanding of line plots.

### **Vocabulary:**

- Line plot
- Outlier

### **Activities/Strategies/Study Skills:**

- Math and Science Project (advanced)
- S.L.O.T.
- Review What You Know
- Daily Common Core Review
- Today's Challenge
- Solve and Share
- Practice Buddy (online)
- Math Games (online)

- Another Look Video (intervention)
- Reteach Worksheet (intervention)
- Math and Science Activity (on level and advanced)
- Leveled Homework
- Intervention Activities
- Problem Solving Reading Mat (on level and advanced)
- On-Level and Advanced Activity Centers
- Math Practices and Problem Solving Pages
- Fluency Practice Activity
- Vocabulary Review
- Reteach for Understanding
- Math Diagnosis and Intervention System 2.0 (remedial)
- ELL Toolkit

**Assessments:**

District created Topic 11 Assessment

On-going formative assessment

**Additional Resources:**

- NASD Grade 4 Math Curriculum and Assessment Handbook



## **Topic 12: Understand and Compare Decimals**

### **Topic Overview:**

- Mathematical relationships among numbers can be represented, compared, and communicated.
- Understand decimal notation for fractions, and compare decimal fractions.

### **Standards:**

CC.2.1.4.C.3

- Connect decimal notation to fractions, and compare decimal fractions (base 10 denominator, e.g. 19/100)

### **Eligible Content:**

#### **M04.A-F.3.1.1**

- Add two fractions with respective denominators 10 and 100.

#### **M04A-F3.1.2**

- Use decimal notation for fractions with denominators 10 or 100.

#### **M04.A-F.3.1.3**

- Compare two decimals to hundredths using the symbols  $>$ ,  $=$ , or  $<$ , and justify the conclusions.

### **Essential Questions (Core Concepts):**

1. How can you write a fraction as a decimal?
2. How can you locate points on a number line?
3. How do you compare decimals?

### **Objectives (Skills/Knowledge):**

- Relate fractions and decimals with denominators of 10 and 100.
- Locate and describe fractions and decimals on number lines.
- Compare decimals by reasoning about their size.
- Add fractions with denominators of 10 and 100 by using equivalent fractions.
- Use fractions or decimals to solve word problems involving money.
- Use the structure of the place-value system for decimals to solve problems.

### **Vocabulary:**

- Tenth
- Hundredth
- Decimal
- Decimal point

### **Activities/Strategies/Study Skills:**

- Math and Science Project (advanced)
- S.L.O.T.
- Review What You Know
- Daily Common Core Review
- Today's Challenge
- Solve and Share
- Practice Buddy (online)

- Math Games (online)
- Another Look Video (intervention)
- Reteach Worksheet (intervention)
- Math and Science Activity (on level and advanced)
- Leveled Homework
- Intervention Activities
- Problem Solving Reading Mat (on level and advanced)
- On-Level and Advanced Activity Centers
- Math Practices and Problem Solving Pages
- Fluency Practice Activity
- Vocabulary Review
- Reteach for Understanding
- Math Diagnosis and Intervention System 2.0 (remedial)
- ELL Toolkit

**Assessments:**

District created Topic 12 Assessment

On-going formative assessment

**Additional Resources:**

- NASD Grade 4 Math Curriculum and Assessment Handbook

## **Topic 13: Measurement: Find Equivalence in Units of Measure**

### **Topic Overview:**

- Measurement attributes can be quantified, and estimated using customary and non-customary units of measure.
- Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.

### **Standards:**

CC.2.4.4.A.1

- Solve problems involving measurement and conversions from a larger unit to a smaller unit.

### **Eligible Content:**

#### **M04.D-M.1.1.1**

- Know relative sizes of measurement units within one system of units including standard units (in., ft, yd, mi; oz., lb; and c, pt, qt, gal), metric units (cm, m, km; g, kg; and mL, L), and time (sec, min, hr, day, wk, mo, and yr). Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. A table of equivalencies will be provided.

#### **M04.D-M.1.1.2**

- Use the four operations to solve word problems involving distances, intervals of time (such as elapsed time), liquid volumes, masses of objects; 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.

#### **M04.D-M.1.1.3**

- Apply the area and perimeter formulas for rectangles in real-world and mathematical problems (may include finding a missing side length). Whole numbers only. The formulas will be provided.

#### **M04.D-M.1.1.4**

- Identify time (analog or digital) as the amount of minutes before or after the hour. Example 1: 2:50 is the same as 10 minutes before 3:00.

### **Essential Questions (Core Concepts):**

1. How can you convert from one unit to another?
2. How can you be precise when solving math problems?

### **Objectives (Skills/Knowledge):**

- Recognize the relative size of customary units of length, capacity, and weight and convert from a larger unit to a smaller unit.
- Recognize the relative size of metric units of length, capacity, and mass and convert from a larger unit to a smaller unit.
- Find the unknown length or width of a rectangle using the known area or perimeter.
- Be precise when solving measurement problems.

### **Vocabulary:**

- Capacity
- Quart
- Gallon
- Cup

- Pint
- Fluid ounce
- Weight
- Ounce
- Pound
- Ton
- Millimeter
- Centimeter
- Meter
- Kilometer
- Mass
- Milliliter
- Liter
- Gram
- Milligram
- Kilogram
- Perimeter
- Area
- Formula

**Activities/Strategies/Study Skills:**

- Math and Science Project (advanced)
- S.L.O.T.
- Review What You Know
- Daily Common Core Review
- Today's Challenge
- Solve and Share
- Practice Buddy (online)
- Math Games (online)
- Another Look Video (intervention)
- Reteach Worksheet (intervention)
- Math and Science Activity (on level and advanced)
- Leveled Homework
- Intervention Activities
- Problem Solving Reading Mat (on level and advanced)
- On-Level and Advanced Activity Centers
- Math Practices and Problem Solving Pages
- Fluency Practice Activity
- Vocabulary Review
- Reteach for Understanding
- Math Diagnosis and Intervention System 2.0 (remedial)
- ELL Toolkit

**Assessments:**

District created Topic 13 Assessment

On-going formative assessment

**Additional Resources:**

- NASD Grade 4 Math Curriculum and Assessment Handbook

**Topic 14: Algebra: Generate and Analyze Patterns**

**Topic Overview:**

- Patterns exhibit relationships can be extended, described, and generalized.
- Generate and analyze patterns.

**Standards:**

CC.2.2.4.A.4

- Generate and analyze patterns using one rule.

**Eligible Content:**

**M04.B-O.3.1.1**

- 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. Example 1: Given the rule “Add 3” and the starting number 1, generate terms in the resulting sequence and observe that the terms alternate between odd and even numbers.

**M04.B-O.3.1.2**

- Determine the missing elements in a function table (limit to +, −, or  $\times$  and to whole numbers or money).

**M04.B-O3.1.3**

- Determine the rule for a function given a table (limit to +, −, or  $\times$  and to whole numbers).

**Essential Questions (Core Concepts):**

1. How can you use a rule to continue a pattern?
2. How can you use a table extend a pattern?
3. How can you use a repeating pattern to predict a shape?

**Objectives (Skills/Knowledge):**

- Create or extend a number sequence based on a rule. Identify features of the pattern in the sequence that are not described by the rule.
- Use a rule to extend a number pattern and solve a problem. Identify features of the pattern.
- Generate a shape pattern that follows a given rule and predict a shape in that pattern.
- Solve problems using patterns.

**Vocabulary:**

- Rule
- Repeating patterns

**Activities/Strategies/Study Skills:**

- Math and Science Project (advanced)

- S.L.O.T.
- Review What You Know
- Daily Common Core Review
- Today's Challenge
- Solve and Share
- Practice Buddy (online)
- Math Games (online)
- Another Look Video (intervention)
- Reteach Worksheet (intervention)
- Math and Science Activity (on level and advanced)
- Leveled Homework
- Intervention Activities
- Problem Solving Reading Mat (on level and advanced)
- On-Level and Advanced Activity Centers
- Math Practices and Problem Solving Pages
- Fluency Practice Activity
- Vocabulary Review
- Reteach for Understanding
- Math Diagnosis and Intervention System 2.0 (remedial)
- ELL Toolkit

**Assessments:**

District created Topic 14 Assessment

On-going formative assessment

**Additional Resources:**

- NASD Grade 4 Math Curriculum and Assessment Handbook

## **Topic 15: Geometric Measurement: Understand Concepts of Angles and Angle Measurement**

### **Topic Overview:**

- Geometric relationships can be described, analyzed, and classified based on spatial reasoning and/or visualization
- Understand concepts of angle and measure angles.

### **Standards:**

CC.2.3.4.A.1

- Draw lines and angles and identify these in two-dimensional figures.

CC.2.4.4.A.6

- Measure angles and use properties of adjacent angles to solve problems.

### **Eligible Content:**

#### **M04.C-G.1.1.1**

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

#### **M04.D-M.3.1.1**

- Measure angles in whole number degrees using a protractor. With aid of a protractor, sketch angles of specified measure.

#### **M04.D-M.3.1.2**

- Solve addition and subtraction problems to find unknown angles on a diagram in real-world and mathematical problems. (Angles must be adjacent and non-overlapping.)

### **Essential Questions (Core Concepts):**

1. What are some common geometric terms?
2. How can you measure angles?

### **Objectives (Skills/Knowledge):**

- Recognize and draw lines, rays, and angles with different measures.
- Find the measure of an angle that turns through a fraction of a circle.
- Use angle measures to measure of unknown angles.
- Use a protractor to measure and draw angles.
- Use addition and subtraction to solve problems with unknown angles measures.
- Use appropriate tools, such as a protractor and ruler, to solve problems.

### **Vocabulary:**

- Point
- Line
- Line segment
- Ray
- Right angle
- Acute angle
- Obtuse angle
- Straight angle
- Degree

- Unit angle
- Angle measure
- Protractor
- Vertex

**Activities/Strategies/Study Skills:**

- Math and Science Project (advanced)
- S.L.O.T.
- Review What You Know
- Daily Common Core Review
- Today's Challenge
- Solve and Share
- Practice Buddy (online)
- Math Games (online)
- Another Look Video (intervention)
- Reteach Worksheet (intervention)
- Math and Science Activity (on level and advanced)
- Leveled Homework
- Intervention Activities
- Problem Solving Reading Mat (on level and advanced)
- On-Level and Advanced Activity Centers
- Math Practices and Problem Solving Pages
- Fluency Practice Activity
- Vocabulary Review
- Reteach for Understanding
- Math Diagnosis and Intervention System 2.0 (remedial)
- ELL Toolkit

**Assessments:**

District created Topic 15 Assessment  
 On-going formative assessment

**Additional Resources:**

- NASD Grade 4 Math Curriculum and Assessment Handbook



## Topic 16: Lines, Angles, and Shape

### Topic Overview:

- Geometric relationships can be described, analyzed, and classified based on spatial reasoning and/or visualization
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### Standards:

CC.2.3.4.A.2

- Classify two-dimensional figures by properties of their lines and angles.

CC.2.3.4.A.3

- Recognize symmetric shapes and draw lines of symmetry.

### Eligible Content:

#### M04.C-G.1.1.2

- 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.

#### M04.C-G.1.1.3

- 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 mirroring parts. Identify line-symmetric figures and draw lines of symmetry (up to two lines of symmetry).

### Essential Questions (Core Concepts):

1. How can you classify triangles and quadrilaterals?
2. What is symmetry?

### Objectives (Skills/Knowledge):

- Draw and Identify perpendicular, parallel, and intersecting lines.
- Classify triangles by line segments and angles.
- Classify quadrilaterals by line segments and angles.
- Recognize and draw lines of symmetry. Identify line symmetric figures.
- Draw figures that have a line of symmetry.
- Use understanding of two-dimensional shapes to critique the reasoning of others.

### Vocabulary:

- Parallel lines
- Perpendicular lines
- Intersecting lines
- Right triangle
- Obtuse triangle
- Equilateral triangle
- Isosceles triangle
- Scalene triangle
- Parallelogram
- Rectangle

- Square
- Rhombus
- Trapezoid
- Line symmetric
- Line of symmetry

**Activities/Strategies/Study Skills:**

- Math and Science Project (advanced)
- S.L.O.T.
- Review What You Know
- Daily Common Core Review
- Today's Challenge
- Solve and Share
- Practice Buddy (online)
- Math Games (online)
- Another Look Video (intervention)
- Reteach Worksheet (intervention)
- Math and Science Activity (on level and advanced)
- Leveled Homework
- Intervention Activities
- Problem Solving Reading Mat (on level and advanced)
- On-Level and Advanced Activity Centers
- Math Practices and Problem Solving Pages
- Fluency Practice Activity
- Vocabulary Review
- Reteach for Understanding
- Math Diagnosis and Intervention System 2.0 (remedial)
- ELL Toolkit

**Assessments:**

District created Topic 16 Assessment  
On-going formative assessment

**Additional Resources:**

- NASD Grade 4 Math Curriculum and Assessment Handbook