Saugus Public Schools
Grade 3 Math
Curriculum Map

Place Value, Addition and Subtraction
Start day: 1
Meetings: 32 days

<table>
<thead>
<tr>
<th>Topics</th>
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| • Place Value and Numeration  
  ○ Representing Numbers (Place-Value Blocks, Standard Form, Word Form, Expanded Form)  
  ○ Understanding and Counting on Number Lines  
  ○ Comparing Numbers in the Thousands  
  ○ Ordering Numbers in the Thousands |

| Addition and Subtraction - Number Sense  
  ○ Meaning of Addition and Subtraction  
  ○ Addition Properties (Commutative, Identity, Associative)  
  ○ Rounding to the Nearest 10 or 100  
  ○ Estimating Sums and Differences for Reasonableness  
  ○ Understanding Addition and Subtraction Equations |

| Using Place Value to Add and Subtract  
  ○ Expanded Algorithm for Addition  
  ○ Add 3-Digit Numbers  
  ○ Add 3 or More Numbers  
  ○ Expanded Algorithm for Subtraction  
  ○ Subtracting 3-Digit Numbers across Zeros  
  ○ Draw a Picture and Write Number Sentences to Solve Addition and Subtraction Problems |

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<tr>
<th>Objectives</th>
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| The students will be able to...  
  • use place value understanding and properties of operations to perform multi-digit arithmetic.  
  • solve problems involving the four operations.  
  • identify and explain patterns in arithmetic. |

<table>
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<tr>
<th>Essential Questions</th>
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<tbody>
<tr>
<td>1. How are greater numbers read and written?</td>
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<td>2. How can whole numbers be compared and ordered?</td>
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<tr>
<td>3. How can sums and differences be found mentally?</td>
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</table>
4. How can sums and differences be estimated?

5. What are standard procedures for adding and subtracting whole numbers?

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<td>o Interactive Resources (Slide Shows, Manipulatives)</td>
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<tr>
<th>Topic 1 - Numeration</th>
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<td>o Lessons 1.1-1.8</td>
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<th>Topic 2 - Number Sense</th>
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<th>Topic 3 - Using Place Value to Add and Subtract</th>
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<table>
<thead>
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<th>Standards</th>
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<tr>
<td>Use place value understanding and properties of operations to perform multi-digit arithmetic.</td>
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<table>
<thead>
<tr>
<th>Standard [CC 3 N&amp;OBT] 3.NBT.1</th>
<th>Use place value understanding to round whole numbers to the nearest 10 or 100.</th>
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</thead>
<tbody>
<tr>
<td>Standard [CC 3 N&amp;OBT] 3.NBT.2</td>
<td>Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and / or the</td>
</tr>
</tbody>
</table>
relationship between addition and subtraction.

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

- **Standard [CC 3 O&AT] 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.

- **Standard [CC 3 O&AT] 3.OA.9** Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations.
Topics

- Meanings of Multiplication
  - Multiplication as Repeated Addition
  - Using Arrays
  - Commutative Property
  - Understand the Meaning of Multiplication

- Multiplication Facts: Use Patterns
  - Identify Arithmetic Patterns to Find Multiplication Facts
  - Know Facts: 0, 1, 2, 5, and 9
  - Using Basic Facts to Multiply by Multiples of 10
  - Answering 2-Question Problems Using Multiplication Facts

- Multiplication Facts: Use Known Facts
  - Use the Distributive Property and Breaking Apart for Factors 3, 4, 6, 7, and 8
  - Multiplying 3 Factors
  - Using Multiplication to find Combinations
  - Solve Multiple-Step Problems using Multiplication Facts

Objectives

The students will be able to...

- represent and solve problems involving multiplication and division.
- understand the properties of multiplication and the relationship between multiplication and division.
- solve problems involving the four operations.
- identify and explain patterns in arithmetic.
- multiply and divide within 100
- use place value understanding and properties of operations to perform multi-digit arithmetic.

Essential Questions

1. What are different meanings of multiplication?
2. How are addition and multiplication related?
3. What patterns can be used to find certain multiplication facts?
4. How can unknown multiplication facts be found using known facts?
## Resources

- **enVisionMATH Resources**
  - Textbook (Also Online)
  - Interactive Resources (Slide Shows, Manipulatives)
  - Worksheets (Daily Common Core Review, Quick Checks, Enrichment)
  - Workbook (Re- and Practice Pages)
  - Center Activities
  - Common Core Standards Practice Workbook

- **Topic 4 - Meanings of Multiplication**
  - Lessons 4.1-4.5

- **Topic 5 - Multiplication Facts: Use Patterns**
  - Lessons 5.1-5.7

- **Topic 6 - Multiplication Facts: Use Known Facts**
  - Lessons 6.1-6.9

## Suggested Instructional Practices

## Assessments

- **Unit Assessment**
- **enVisionMATH**
  - Topic 4 Test
  - Topic 4 Test in Student Textbook
  - Topic 4 Performance Assessment
  - Topic 5 Test
  - Topic 5 Test in Student Textbook
  - Topic 5 Performance Assessment
  - Topic 6 Test
  - Topic 6 Test in Student Textbook
  - Topic 6 Performance Assessment

## Standards

Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.

- **Standard [CC 3 M&D] 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 areas or with the same area and different perimeters.

Relate area to the operations of multiplication and addition.

- **[CC 3 M&D] 3.MD.7.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 × b and a × c. Use area models to represent the distributive property in mathematical reasoning.

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

- **Standard [CC 3 N&OBT] 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.

Multiply and divide within 100.

- **Standard [CC 3 O&AT] 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 two one-digit numbers.

Represent and solve problems involving multiplication and division.

- **Standard [CC 3 O&AT] 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.
- **Standard [CC 3 O&AT] 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.

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

- **Standard [CC 3 O&AT] 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.
- **Standard [CC 3 O&AT] 3.OA.9** Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations.

Understand properties of multiplication and the relationship between multiplication and division.

- **Standard [CC 3 O&AT] 3.OA.5** Apply properties of operations as strategies to multiply and divide.
**Topics**

- **Meanings of Division**
  - Understand Division is to Find How Many Equal Groups or How Many in a Group
  - Division as Repeated Subtraction
  - Understand that Division is an "Unknown Factor" Problem
  - Use Knowledge of Division to Solve and Create Word Problems

- **Division Facts**
  - Relate Multiplication to Division
  - Use Fact Families to Fluently Divide within 100
  - Solve Multiple-Step Problems Using Division
  - Solve Equations with Multiplication and Division Facts
  - Dividing with 0 and 1
  - Draw a Picture and Write a Number Sentence using Division

**Objectives**

The students will be able to...

- represent and solve problems involving multiplication and division.
- understand the properties of multiplication and the relationship between multiplication and division.
- solve problems involving the four operations.
- identify and explain patterns in arithmetic.
- divide and multiply within 100.

**Essential Questions**

1. What are different meanings of division?
2. How is division related to other operations?
3. How can an unknown division fact be found by thinking of a related multiplication fact?

**Resources**

- **enVisionMATH Resources**
  - Textbook (Also Online)
  - Interactive Resources (Slide Shows, Manipulatives)
  - Worksheets (Daily Common Core Review, Quick Checks, Enrichment)
  - Workbook (Re- and Practice Pages)
  - Center Activities
  - Common Core Standards Practice Workbook

- **Topic 7 - Meanings of Division**
Lessons 7.1-7.6

- **Topic 8 - Division Facts**
  - Lessons 8.1-8.9

### Suggested Instructional Practices

### Assessments

- Unit Assessment
- **enVisionMATH**
  - Topic 7 Test
  - Topic 7 Test in Student Textbook
  - Topic 7 Performance Assessment
  - Topic 8 Test
  - Topic 8 Test in Student Textbook
  - Topic 8 Performance Assessment

### Standards

**Multiply and divide within 100.**

- **Standard [CC 3 O&AT] 3.OA.7** Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

Represent and solve problems involving multiplication and division.

- **Standard [CC 3 O&AT] 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.

- **Standard [CC 3 O&AT] 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.

- **Standard [CC 3 O&AT] 3.OA.4** Determine the unknown whole number in a multiplication or division equation relating three whole numbers.

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

- **Standard [CC 3 O&AT] 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.

- **Standard [CC 3 O&AT] 3.OA.9** Identify arithmetic patterns (including patterns in the
Understand properties of multiplication and the relationship between multiplication and division.

- **Standard [CC 3 O&AT] 3.OA.5** Apply properties of operations as strategies to multiply and divide.
### Topics

- **Area**
  - Understand the Concept of Area and Square Units
  - Measure Area by Counting Squares
  - Find the Area of Squares and Rectangles using Multiplication
  - Use Area Models to Understand Distributive Property and Breaking Apart
  - Find the Area of Irregular Shapes
  - Understand Shapes Can Have the Same Area and Different Perimeter
  - Portion Areas into Fractional Pieces
  - Using Tools to Find Area

- **Perimeter**
  - Understand Perimeter
  - Using Tools to Find Perimeter
  - Solve Real World and Mathematical Problems by finding Perimeter of Regular and Irregular Shapes
  - Understand Different Shapes Can Have the Same Perimeter

- **Adding/Subtracting Whole Number**
- **Subtracting Across Zeros**
- **Draw Picture and Write an Equation**

### Objectives

The students will be able to...

- **understand** concepts of area.
- **relate** area to multiplication and addition.
- **recognize** perimeter as an attribute of plane figures.
- **distinguish** between linear and area measures.

### Essential Questions

1. How can perimeter be measured and found?
2. What does area mean?
3. What are different ways to find the area of a shape?

### Resources

- **enVisionMATH Resources**
  - Textbook (Also Online)
  - Interactive Resources (Slide Shows, Manipulatives)
  - Worksheets (Daily Common Core Review, Quick Checks, Enrichment)
- Workbook (Re- and Practice Pages)
- Center Activities
- Common Core Standards Practice Workbook

- **Topic 14 - Area (Multiplication Application)**
  - Lessons 14.1-14.10 (Wait to do 14.8 Until after Perimeter if you choose to do Area first)

- **Topic 13 - Perimeter**

**Suggested Instructional Practices**

**Assessments**

- Unit Assessment
- **enVisionMATH**
  - Topic 13 Test
  - Topic 13 Test in Student Textbook
  - Topic 13 Performance Assessment
  - Topic 14 Test
  - Topic 14 Test in Student Textbook
  - Topic 14 Performance Assessment

**Standards**

Reason with shapes and their attributes.

- **Standard [CC 3 G] 3.G.2** Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole.

Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.

- **Standard [CC 3 M&D] 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 areas or with the same area and different perimeters.

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

- **Standard [CC 3 M&D] 3.MD.6** Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).

Recognize area as an attribute of plane figures and understand concepts of area.
measurement.

- **[CC 3 M&D] 3.MD.5.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.
- **[CC 3 M&D] 3.MD.5.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.

Relate area to the operations of multiplication and addition.

- **[CC 3 M&D] 3.MD.7.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.
- **[CC 3 M&D] 3.MD.7.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.
- **[CC 3 M&D] 3.MD.7.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 × b and a × c. Use area models to represent the distributive property in mathematical reasoning.
- **[CC 3 M&D] 3.MD.7.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.
Fractions
Start day: 95
Meetings: 22 days

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<td>- Understand Fractions Can be Equal Parts of a Region or a Set</td>
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<tr>
<td>- Finding Fractional Parts of a Set</td>
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<td>- Locate and Place Fractions on a Number Line</td>
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<tr>
<td>- Use and Understand Benchmark Fractions</td>
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<tr>
<td>Fraction Comparison and Equivalence</td>
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<tr>
<td>- Comparing Fractions with the Same Denominator</td>
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<tr>
<td>- Comparing Fractions with the Same Numerator</td>
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<tr>
<td>- Comparing Fractions using Benchmark Fractions</td>
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<tr>
<td>- Comparing Fractions on the Number Line</td>
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<tr>
<td>- Understand and Find Equivalent Fractions with and without the Number Line</td>
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<tr>
<td>- Express Fractions for Whole Numbers</td>
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<td>- Order Fractions</td>
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<tr>
<td>The students will be able to...</td>
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<tr>
<td>- develop understanding of fractions as numbers.</td>
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<tr>
<td>- represent and solve problems involving multiplication and division as related to fractions.</td>
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<tr>
<th>Essential Questions</th>
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<tbody>
<tr>
<td>1. What are different interpretations of a fraction?</td>
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<td>2. What are different ways to compare fractions?</td>
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<td>- Common Core Standards Practice Workbook</td>
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<td>Topic 9 - Understanding Fractions</td>
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<td>Topic 10 - Fraction Comparison and Equivalence</td>
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Lessons 10.1-10.9

Suggested Instructional Practices

Assessments

- Unit Assessment
- enVisionMATH
  - Topic 9 Test
  - Topic 9 Test in Student Textbook
  - Topic 9 Performance Assessment
  - Topic 10 Test
  - Topic 10 Test in Student Textbook
  - Topic 10 Performance Assessment

Standards

Develop understanding of fractions as numbers.

- **Standard** [CC 3 N&OF] 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.

Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.

- **[CC 3 N&OF] 3.NF.3.a** Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.
- **[CC 3 N&OF] 3.NF.3.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.
- **[CC 3 N&OF] 3.NF.3.c** Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers.
- **[CC 3 N&OF] 3.NF.3.d** Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.

Understand a fraction as a number on the number line; represent fractions on a number line diagram.

- **[CC 3 N&OF] 3.NF.2.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
• **[CC 3 N&OF] 3.NF.2.b** Represent a fraction $\frac{a}{b}$ on a number line diagram by marking off $a$ lengths $\frac{1}{b}$ from 0. Recognize that the resulting interval has size $\frac{a}{b}$ and that its endpoint locates the number $\frac{a}{b}$ on the number line.

Represent and solve problems involving multiplication and division.

• **Standard [CC 3 O&AT] 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.
### Topics

- **Time**
  - Tell and Write Time to the Nearest Minute
  - Convert Units of Time using Multiplication
  - Solve Word Problems Involving Addition and Subtraction of Time Intervals
  - Work Backward to Solve Problems with Elapsed Time

### Objectives

The students will be able to...

- solve problems involving measurement and estimation of intervals of time.

### Essential Questions

1. How can lengths of time be measured and found?

### Resources

- **enVisionMATH Resources**
  - Textbook (Also Online)
  - Interactive Resources (Slide Shows, Manipulatives)
  - Worksheets (Daily Common Core Review, Quick Checks, Enrichment)
  - Workbook (Re- and Practice Pages)
  - Center Activities
  - Common Core Standards Practice Workbook

- **Topic 12 - Time**
  - Lessons 12.1-12.5

### Suggested Instructional Practices

### Assessments

- Unit Assessment
- **enVisionMATH**
  - Topic 12 Test
  - Topic 12 Test in Student Textbook
○ Topic 12 Performance Assessment

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<td>Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.</td>
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- **Standard** [CC 3 M&D] 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.
Geometry and Measurement
Start day:123
Meetings:19 days

Topics

- Two-Dimensional Shapes and Their Attributes
  - Types of Lines and Line Segments
  - Rays, Angles, and Types of Angles
  - Understand Attributes of Different Types of Polygons (Especially Triangles and Quadrilaterals)
  - Combining, Separating, and Making New Shapes
  - Make and Test Generalizations of Polygons

- Liquid Volume and Mass
  - Measure and Estimate Customary Units of Capacity
  - Measure and Estimate Metric Units of Capacity
  - Measure and Estimate Customary Units of Weight
  - Measure and Estimate Metric Units of Mass
  - Draw a Picture to Solve Problems Involving Volume and Mass

Objectives

The students will be able to...

- reason with shapes and their attributes.
- solve problems involving measurement and estimation of liquid volume and masses of objects.

Essential Questions

1. How can two-dimensional shapes be described, analyzed, and classified?
2. What are the customary units for measuring capacity and weight?
3. What are the metric units for measuring capacity and mass?

Resources

- enVisionMATH Resources
  - Textbook (Also Online)
  - Interactive Resources (Slide Shows, Manipulatives)
  - Worksheets (Daily Common Core Review, Quick Checks, Enrichment)
  - Workbook (Re- and Practice Pages)
  - Center Activities
  - Common Core Standards Practice Workbook

- Topic 11 - Two-Dimensional Shapes and Their Attributes
  - Lessons 11.1-11.9
• **Topic 15 - Liquid Volume and Mass**  
  o Lessons 15.1-15.5

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**Suggested Instructional Practices**

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**Assessments**

• Unit Assessment
• **enVisionMATH**  
  o Topic 11 Test  
  o Topic 11 Test in Student Textbook  
  o Topic 11 Performance Assessment  
  o Topic 15 Test  
  o Topic 15 Test in Student Textbook  
  o Topic 15 Performance Assessment

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**Standards**

Reason with shapes and their attributes.

• **Standard [CC 3 G] 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.

• **Standard [CC 3 G] 3.G.2** Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole.

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

• **Standard [CC 3 M&D] 3.MD.2** Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). 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.
Data
Start day: 142
Meetings: 9 days

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<th><strong>Topics</strong></th>
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<tr>
<td>• Data</td>
</tr>
<tr>
<td>○ Read and Create Line Plots with Correct Labels and Scale</td>
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<td>○ Read and Create Pictographs with Correct Labels and Scale</td>
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<tr>
<td>○ Read and Create Bar Graphs with Correct Labels and Scale</td>
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<tbody>
<tr>
<td>The students will be able to...</td>
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<tr>
<td>• represent and interpret data.</td>
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<tbody>
<tr>
<td>1. How can data be represented, interpreted, and analyzed?</td>
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Standards

Represent and interpret data.

- **Standard [CC 3 M&D] 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.

- **Standard [CC 3 M&D] 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.
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  o Textbook (Also Online)  
  o Interactive Resources (Slide Shows, Manipulatives)  
  o Workbook (Re-teaching and Practice Pages)  
  o Common Core Standards Practice Workbook |
| • Step Up to Grade 4  
  o Lessons 1-10 |
| Suggested Instructional Practices |
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