# Math - Grade 4

## Instructional Unit  Big Numbers, Estimation, Computation

### Fourth Grade Math

#### Unit Content

<table>
<thead>
<tr>
<th>Big Numbers, Estimation, Computation:</th>
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<tbody>
<tr>
<td>Extended Multiplication Facts</td>
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<tr>
<td>Multiplication Wrestling</td>
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<tr>
<td>Estimating Sums</td>
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<tr>
<td>Estimating Products</td>
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<tr>
<td>The Partial-Products Algorithm for Multiplication (Part 1)</td>
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<tr>
<td>The Partial-Products Algorithm for Multiplication (Part 2)</td>
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<tr>
<td>Lattice Multiplication</td>
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<tr>
<td>Big Numbers</td>
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<tr>
<td>Powers of 10</td>
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<tr>
<td>Rounding and Reporting Large Numbers</td>
</tr>
<tr>
<td>World Tour: Traveling to Europe (Optional)</td>
</tr>
</tbody>
</table>

#### Objective

The students will be able to solve multidigit multiplication problems by utilizing successful strategies.

* to extend basic multiplication facts to products of ones and tens and products of tens and tens
* to practice the extended multiplication facts; and to introduce the basic principles of multiplication with multidigit numbers
* to learn and practice the partial-products algorithm for 1-digit multipliers
* to learn and practice the partial-products algorithm for 2-digit multipliers
* to learn and practice the lattice method for multiplication

#### Performance Indicator

- Use exponential notation to represent powers of 10 (B).
- Solve extended multiplication facts (D).
- Make magnitude estimates for products of multidigit numbers (D).
- Solve multidigit multiplication problems using partial products or the lattice method (D).

#### Performance Task

- math journals
- constructions
- games
- classroom discussion
- demonstrations
- unit reviews
- quizzes
- tests
- slate practice
- math messages
- mental math and reflexes
- literature

#### State Standards Code:

2.2.5 A, D, F, H, I
### Instructional Unit  Big Numbers, Estimation, Computation

#### Fourth Grade Math

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<tr>
<td>Big Numbers, Estimation, Computation:</td>
<td>The students will be able to read, write, and compare large numbers.</td>
<td>-Read and write numbers to billions (D).</td>
<td>2.4.5 A, C, F</td>
</tr>
<tr>
<td>Extended Multiplication Facts</td>
<td>* to read, write and compare larger numbers using patterns in the base-ten place-value system</td>
<td>-Name the value of digits in numerals to billions (D).</td>
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<td>Multiplication Wrestling</td>
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<td>-Compare large numbers (S).</td>
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## Instructional Unit  
### Decimals and Their Uses

### Fourth Grade Math

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<td>Decimal Addition and Subtraction</td>
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<td>Decimals in Money</td>
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<td>Thousandths</td>
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<tr>
<td>Metric Units of Length</td>
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<tr>
<td>Personal References for Metric Length</td>
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<tr>
<td>Measuring in Millimeters</td>
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<tr>
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<td>Review and Assessment</td>
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#### Objective

| The students will be able to extend place value concepts to numbers with decimals. |
| * to review basic concepts and notation for decimals through hundredths |
| * to compare and order decimals in tenths and hundredths |
| * to learn why decimals are useful; and to estimate sums and differences of decimals |
| * to extend methods for whole-number addition and subtraction to decimals |
| * to compute balances in a savings account |
| * to extend basic concepts and notation for decimals to thousandths |
| * to summarize the concepts presented in this unit by extending the base-ten place-value system to decimals |

#### Performance Indicator

- Read and write decimals to thousandths (D).
- Compare and order decimals (D).
- Solve 1- and 2-place decimal addition and subtraction problems and number stories (D).
- Use dollars-and-cents notation's

#### Performance Task

- Math journals
- Constructions
- Games
- Classroom discussion
- Demonstrations
- Unit reviews
- Quizzes
- Tests
- Slate practice
- Math messages
- Mental math and reflexes
- Literature

#### State Standards Code:

2.1.5 A, C, D; 2.11.5 A
### Instructional Unit: Decimals and Their Uses

**Fourth Grade Math**

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<tr>
<td>The students will be able to apply decimal concepts to metric measurement.</td>
<td>-Express metric measures with decimals (D).</td>
<td>-math journals -constructions -games</td>
<td>2.3.5 B, C, D, E</td>
</tr>
<tr>
<td>* to review the relationship among metric units of length; and to work with metric measurements</td>
<td>-Convert between metric measures (D).</td>
<td>-classroom discussion -demonstrations -unit reviews -quizzes -tests</td>
<td></td>
</tr>
<tr>
<td>* to establish personal references for metric units of length</td>
<td>-Draw and measure line segments to the nearest millimeter (D).</td>
<td>-slate practice -math messages</td>
<td></td>
</tr>
<tr>
<td>* to measure lengths to nearest millimeters; and to convert measurements between millimeters and centimeters</td>
<td>-Use personal references to estimate lengths in metric (D).</td>
<td>-mental math and reflexes -literature</td>
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### Instructional Unit  
**Division; Map Reference Frames; Angles**

#### Fourth Grade Math

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<tr>
<td>Division; Map Reference Frames; Angles:</td>
<td>The students will be able to identify, construct, and measure angles.</td>
<td>-Identify acute, right, obtuse, straight, and reflex angles (D).</td>
<td>-math journals</td>
<td>2.9.5 K ; 2.10.5 A</td>
</tr>
<tr>
<td>A Multiples Strategy for Division</td>
<td></td>
<td>-Make turns and fractions of turns (D).</td>
<td>-constructions</td>
<td></td>
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<tr>
<td>The Partial-Quotients Division Algorithm</td>
<td></td>
<td>-Relate turns and angles (D).</td>
<td>-games</td>
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<tr>
<td>Multiplication and Division Number Stories</td>
<td></td>
<td>-Use a circular protractor and a half-circle protractor to measure and draw angles (D)</td>
<td>-classroom discussion</td>
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<tr>
<td>Expressing and Interpreting Remainders</td>
<td>* to review rotations; and to make and use a circular protractor</td>
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<td>-demonstrations</td>
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<tr>
<td>Rectangular Coordinate Grids for Maps</td>
<td>* to use a circular protractor to measure and draw angles less than 360 degrees</td>
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<td>-unit reviews</td>
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<tr>
<td>Rotations and Angles</td>
<td>* to classify angles as acute, right, obtuse, straight, and reflex; and to use a half-circle protractor to measure angles</td>
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<td>-quizzes</td>
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<tr>
<td>Using a Circular Protractor</td>
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<td>-tests</td>
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<tr>
<td>The Half-Circle Protractor</td>
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<td>-slate practice</td>
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<tr>
<td>The Global Grid System</td>
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<td>-math messages</td>
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<td>Latitude and Longitude</td>
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<td>Review and Assessment</td>
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<td>-literature</td>
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| Division; Map Reference Frames; Angles: | The students will be able to apply their knowledge of the grid system to the concept of latitude and longitude. | -Name and locate points specified by ordered number pairs on a coordinate grid (D). | -math journals | 2.8.5 H |
| A Multiples Strategy for Division | | -Identify locations on Earth for which latitude and longitude are given (B). | -constructions |
| The Partial-Quotients Division Algorithm | | -Find latitude and longitude for given locations (B). | -games |
| Multiplication and Division Number Stories | | | -classroom discussion |
| Expressing and Interpreting Remainders | * to use letter-number pairs and ordered pairs of numbers to locate points on a rectangular grid; and to use a map scale | | -demonstrations |
| Rectangular Coordinate Grids for Maps | * to introduce the partitioning of the globe using circles of latitude and semicircles of longitude; and to use a half-circle protractor to draw angles | | -unit reviews |
| Rotations and Angles | * to find the latitude and longitude of given places using a globe and a map, and to identify places for which the latitude and longitude are given | | -quizzes |
| Using a Circular Protractor | | | -tests |
| The Half-Circle Protractor | | | -slate practice |
| The Global Grid System | | | -math messages |
| Latitude and Longitude | | | -mental math and reflexes |
| Review and Assessment | | | -literature |
### Instructional Unit  Division; Map Reference Frames; Angles

#### Fourth Grade Math

**Unit Content**

- Division; Map Reference Frames; Angles:
  - A Multiples Strategy for Division
  - The Partial-Quotients Division Algorithm
  - Multiplication and Division Number Stories
  - Expressing and Interpreting Remainders
  - Rectangular Coordinate Grids for Maps
  - Rotations and Angles
  - Using a Circular Protractor
  - The Half-Circle Protractor
  - The Global Grid System
  - Latitude and Longitude
  - Review and Assessment

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<tbody>
<tr>
<td>The students will be able to solve whole number division problems by using successful strategies.</td>
<td>-Implement a partial-quotient strategy for solving whole-number division problems (D).</td>
<td>-math journals</td>
<td>2.2.5 A, H</td>
</tr>
<tr>
<td>* to solve equal-grouping division stories by using a multiplies-of-10 strategy</td>
<td>-Express the remainder of a whole-number division problem as a fraction and the answer as a mixed number (D).</td>
<td>-constructions</td>
<td></td>
</tr>
<tr>
<td>* to introduce and practice a “low stress” division algorithm</td>
<td>-Interpret the remainder in division problems (D).</td>
<td>-games</td>
<td></td>
</tr>
<tr>
<td>* to solve multiplication and division number stories, using diagrams to organize information</td>
<td>-Use and explain strategies for solving multiplication and division number stories (D).</td>
<td>-classroom discussion</td>
<td></td>
</tr>
<tr>
<td>* to express remainders in division as fractions or as decimals, and answers as mixed numbers or decimals; and to interpret remainders in problem contexts</td>
<td>*</td>
<td>-demonstrations</td>
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<td>*</td>
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### Instructional Unit  Fractions, Uses, Chance and Probability

**Fourth Grade Math**

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<td>Pattern-Block Fractions</td>
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<td>Fraction Addition and Subtraction</td>
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<td>Clock Fractions</td>
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<tr>
<td>Many Names for Fractions</td>
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<tr>
<td>Equivalent Fractions</td>
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<tr>
<td>Fractions and Decimals</td>
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<tr>
<td>Comparing Fractions</td>
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<tr>
<td>The ONE for Fractions</td>
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<tr>
<td>Probability, Fractions, and Spinners</td>
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<tr>
<td>A Cube - Drop Experiment</td>
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#### Objective

The students will be able to articulate an understanding of chance and probability.

- Apply basic vocabulary and concepts associated with chance events (D).

- Add and subtract fractions (B).
- Identify the whole for fractions (S).
- Identify fractional parts of a collection of objects (S).
- Identify fractional parts of regions (S).

#### Performance Indicator

- Math journals
- Constructions
- Games
- Classroom discussion
- Demonstrations
- Unit reviews
- Quizzes
- Tests
- Slate practice
- Math messages
- Mental math and reflexes
- Literature

#### Performance Task

- Math journals
- Constructions
- Games
- Classroom discussion
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- Quizzes
- Tests
- Slate practice
- Math messages
- Mental math and reflexes
- Literature

#### State Standards Code:

- 2.7.5 A, B, C, D, E, F, G, H, I; 2.6.5 D
- 2.1.5 D; 2.2.5 C, I
- 2.5.5 B, C
## Instructional Unit  
**Fractions, Uses, Chance and Probability**

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<tbody>
<tr>
<td>Fractions, Uses, Chance and Probability:</td>
<td>The students will be able to demonstrate an understanding of equivalent fractions and their relationships to decimals.</td>
<td>-Rename fractions with denominators of 10 and 100 as decimals (D). -Compare and order fractions (D). -Find fractions equivalent to a given fraction (D).</td>
<td>-math journals -constructions -games -classroom discussion -demonstrations -unit reviews -quizzes -tests -slate practice -math messages -mental math and reflexes -literature</td>
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### Instructional Unit  
**Multiplication, Division, Number Sentences, Algebra**

#### Fourth Grade Math

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<td>Multiplication Facts Practice</td>
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<tr>
<td>More Multiplication Facts Practice</td>
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<tr>
<td>Multiplication, Division, and Fractions</td>
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<tr>
<td>World Tour: Flying to Africa (Optional)</td>
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<tr>
<td>Finding Air Distances</td>
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<tr>
<td>A Guide for Solving Number Stories</td>
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<tr>
<td>True or False Number Sentences</td>
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<tr>
<td>Parentheses in Number Sentences</td>
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<tr>
<td>Open Sentences</td>
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<tr>
<td>Logic Problems</td>
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<tr>
<td>The students will be able to use problem-solving strategies in order to solve addition and subtraction number stories.</td>
<td>-Use and explain strategies for solving addition and subtraction number stories (D).</td>
<td>-math journals -constructions -games -classroom discussion -demonstrations -unit reviews -quizzes -tests -slate practice -math messages -mental math and reflexes -literature</td>
<td>2.8.5 C, I ; 2.2.5 A, I</td>
</tr>
<tr>
<td>* to find air distances * to introduce a simplified approach to solving number stories; and to solve number stories * to review the meanings of number stories; and to determine whether number sentences are true or false</td>
<td>-Use map scale to estimate distances (D).</td>
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<tr>
<td>* to develop reasoning skills</td>
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<td>The students will be able to understand the relationship between multiplication and division.</td>
<td>-Solve basic division facts (D).</td>
<td>-math journals -constructions -games -classroom discussion -demonstrations -unit reviews -quizzes -tests -slate practice -math messages -mental math and reflexes -literature</td>
<td>2.8.5 A, B ; 2.2.5 C, I</td>
</tr>
<tr>
<td>* to review strategies for multiplication facts; and to work toward recall of the multiplication facts * to establish a 50-facts test routine; and to practice multiplication facts * to give a 50-facts test and record results; and to practice multiplication facts * to explore the relationship between multiplication and division and between division and factions; and to practice division facts.</td>
<td>-Solve basic multiplication facts (D).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>* to review strategies for multiplication facts; and to work toward recall of the multiplication facts</td>
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</tr>
</tbody>
</table>
### Instructional Unit  
**Multiplication, Division, Number Sentences, Algebra**

#### Fourth Grade Math

**Unit Content**
- Multiplication, Division, Number Sentences, Algebra:
  - Multiplication Facts
  - Multiplication Facts Practice
  - More Multiplication Facts Practice
  - Multiplication, Division, and Fractions
  - World Tour: Flying to Africa (Optional)
  - Finding Air Distances
  - A Guide for Solving Number Stories
  - True or False Number Sentences
  - Parentheses in Number Sentences
  - Open Sentences
  - Logic Problems
  - Review and Assessment

<table>
<thead>
<tr>
<th><strong>Objective</strong></th>
<th><strong>Performance Indicator</strong></th>
<th><strong>Performance Task</strong></th>
<th><strong>State Standards Code:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>The students will be able to apply algebra concepts to number sentences.</td>
<td>-Solve open sentences (D).</td>
<td>-math journals</td>
<td>2.8.5 A, D, E, F, G</td>
</tr>
<tr>
<td>*to review the meanings of number stories; and to determine whether number sentences are true or false</td>
<td>-Insert parentheses to make true number sentences (D).</td>
<td>-constructions</td>
<td></td>
</tr>
<tr>
<td>*to review the use of parentheses in number sentences</td>
<td>-Solve problems with parentheses (D).</td>
<td>-games</td>
<td></td>
</tr>
<tr>
<td>*to introduce vocabulary and notation for open sentences and to solve open sentences</td>
<td>-Determine whether number sentences are true or false (D)</td>
<td>-classroom discussion</td>
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<td></td>
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<td>-demonstrations</td>
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<td></td>
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<td>-unit reviews</td>
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<td>-quizzes</td>
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<td>-tests</td>
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<td>-slate practice</td>
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<td>-math messages</td>
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<td></td>
<td></td>
<td>-mental math and reflexes</td>
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<td></td>
<td></td>
<td>-literature</td>
<td></td>
</tr>
</tbody>
</table>
### Instructional Unit  
**Naming and Constructing Geometric Figures**  
**Fourth Grade Math**  

#### Unit Content
- Naming and Constructing Geometric Figures:  
  - Points, Line Segments, Lines, and Rays  
  - Angles, Triangles, and Quadrangles  
  - Parallelograms  
  - Polygons  
  - Drawing Circles with a Compass  
  - Circle Constructions  
  - Hexagon and Triangle Constructions  
  - Review and Assessment

<table>
<thead>
<tr>
<th>Objective</th>
<th>Performance Indicator</th>
<th>Performance Task</th>
<th>State Standards Code:</th>
</tr>
</thead>
</table>
| The students will be able to recognize and construct geometric figures.  
* to utilize tools for geometry  
* to recognize points, line segments, lines and rays  
* to construct angles, triangles, and quadrangles  
* to classify quadrangles  
* to classify quadrangles based on their properties  
* to identify properties of polygons and distinguish between convex and nonconvex (concave) polygon  
* to explore geometric definitions and classification  
* to explore regular polygons  
* to define a circle  
* to construct designs with circles  
* to construct figures with a compass and straightedge. | -Use a compass and straightedge to construct geometric figures (B).  
-Identify properties of polygons (D).  
-Classify quadrangles according to side and angle properties (D).  
-Name, draw, and label line segments, lines, and rays (S).  
-Name, draw, and label angles, triangles, and quadrangles (S).  
-Identify and describe right angles and parallel lines and line segments (S).  
-Solve addition and subtraction facts (S). | -math journal  
-constructions  
-games  
-classroom discussion  
-demonstrations  
-unit reviews  
- quizzes  
-tests  
-slate practice  
-math messages  
-mental math and reflexes  
-literature | 2.9.5 A, B, D, E, F, H, I, J, L; 2.10.5 B |
### Instructional Unit  
**Percents**

**Fourth Grade Math**

**Unit Content**

<table>
<thead>
<tr>
<th>Percents:</th>
<th>Objective</th>
<th>Performance Indicator</th>
<th>Performance Task</th>
<th>State Standards Code:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fractions, Decimals, and Percents</td>
<td>The students will be able to use an estimation strategy to divide decimals by whole numbers.</td>
<td>-Practice partial-quotient division strategy (D).</td>
<td>-math journals -constructions -classroom discussion -demonstrations -unit reviews -quizzes -tests -slate practice -math messages -mental math and reflexes -literature</td>
<td>2.2.5 G</td>
</tr>
<tr>
<td>Converting &quot;Easy&quot; Fractions to Decimals and Percents</td>
<td>* to divide decimals by whole numbers; and to practice the partial-quotients division algorithm introduced in Unit 6</td>
<td>-Apply an estimation strategy for the placement of the decimal in a division problem (B).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Using a Calculator to Convert Fractions to Decimals</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Using a Calculator to Convert Fractions to Percents</td>
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</tr>
<tr>
<td>Conversions among Fractions, Decimals, and Percents</td>
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</tr>
<tr>
<td>Comparing the Results of a Survey</td>
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<tr>
<td>Comparing Population Data</td>
<td></td>
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<tr>
<td>Multiplication of Decimals</td>
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<tr>
<td>Division of Decimals</td>
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</tbody>
</table>
### Instructional Unit: Percents

**Fourth Grade Math**

**Unit Content**

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<th>Performance Task</th>
<th>State Standards Code:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percents:</td>
<td><em>write equivalent names for percents in various situations (D)</em></td>
<td>-math journals</td>
<td></td>
</tr>
<tr>
<td>Fractions, Decimals, and Percents</td>
<td><em>solve &quot;percent of&quot; number stories (S)</em></td>
<td>-constructions</td>
<td></td>
</tr>
<tr>
<td>Converting &quot;Easy&quot; Fractions to Decimals and Percents</td>
<td><em>identify a pattern when renaming a variety of fractions as decimals (S)</em></td>
<td>-games</td>
<td></td>
</tr>
<tr>
<td>Using a Calculator to Convert Fractions to Decimals</td>
<td><em>solve number stories involving discounts given as percents (S)</em></td>
<td>-classroom discussion</td>
<td></td>
</tr>
<tr>
<td>Using a Calculator to Convert Fractions to Percents</td>
<td><em>renaming &quot;number- of&quot; data as percents (S)</em></td>
<td>-demonstrations</td>
<td></td>
</tr>
<tr>
<td>Conversions among Fractions, Decimals, and Percents</td>
<td><em>tabulate survey results (D)</em></td>
<td>-unit reviews</td>
<td></td>
</tr>
<tr>
<td>Comparing the Results of a Survey</td>
<td>Comparing Population Data</td>
<td><em>quizzes</em></td>
<td></td>
</tr>
<tr>
<td>Multiplication of Decimals</td>
<td>Division of Decimals</td>
<td><em>tests</em></td>
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<tr>
<td>Review ands Assessment</td>
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<td><em>slate practice</em></td>
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<td><em>math messages</em></td>
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<td><em>mental math and reflexes</em></td>
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<td></td>
<td></td>
<td><em>literature</em></td>
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</table>
### Instructional Unit  Perents

#### Fourth Grade Math

<table>
<thead>
<tr>
<th>Objective</th>
<th>Performance Indicator</th>
<th>Performance Task</th>
<th>State Standards Code:</th>
</tr>
</thead>
<tbody>
<tr>
<td>fractions with unlike denominators  * to rank and compare data that are reported as percents; and to display ranked data by coloring maps</td>
<td>-Practice partial-products and lattice methods for multiplication (D). -Apply an estimation strategy for the placement of the decimal in a multiplication problem (B).</td>
<td>-math journals -constructions -games -classroom discussion -demonstrations -unit reviews -quizzes -tests -slate practice -math messages -mental math and reflexes -literature</td>
<td>2.2.5 B, I</td>
</tr>
</tbody>
</table>

**Percents:**

- Fractions, Decimals, and Percents
- Converting "Easy" Fractions to Decimals and Percents
- Using a Calculator to Convert Fractions to Decimals
- Using a Calculator to Convert Fractions to Percents
- Conversions among Fractions, Decimals, and Percents

- Comparing the Results of a Survey
- Comparing Population Data
- Multiplication of Decimals
- Division of Decimals
### Instructional Unit  
**Perimeter and Area**  
**Fourth Grade Math**  
**Unit Content**

<table>
<thead>
<tr>
<th>Objective</th>
<th>Performance Indicator</th>
<th>Performance Task</th>
<th>State Standards Code:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perimeter and Area:</td>
<td>The students will be able to organize measurements and a given scale to create a scale drawing on a grid.</td>
<td>-Measure distances to the nearest foot (S). -Make and interpret a scale drawing (B).</td>
<td>-math journals -constructions -games -classroom discussion -demonstrations -unit reviews -quizzes -tests -slate practice -math messages -mental math and reflexes -literature</td>
</tr>
<tr>
<td>Kitchen Layout and Perimeter</td>
<td></td>
<td></td>
<td>2.3.5 A, B, C ; 2.3.8 F; 2.5.5 C</td>
</tr>
<tr>
<td>Scale Drawings</td>
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<tr>
<td>Area</td>
<td></td>
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<tr>
<td>What is the Area of My Skin?</td>
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<tr>
<td>Formula for the Area of a Rectangle</td>
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<tr>
<td>Formula for the Area of a Parallelogram</td>
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<tr>
<td>Formula for the Area of a Triangle</td>
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<tr>
<td>Geographical Area Measurements</td>
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<tr>
<td>Unit 8 Review and Assessment</td>
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</tr>
<tr>
<td>Perimeter and Area:</td>
<td>The students will be able to determine the perimeter of any polygon.</td>
<td>-Measure and add distances in feet and inches (D). -Find the perimeters of triangles (D).</td>
<td>-math journals -constructions -games -classroom discussion -demonstrations -unit reviews -quizzes -tests -slate practice -math messages -mental math and reflexes -literature</td>
</tr>
<tr>
<td>Kitchen Layout and Perimeter</td>
<td></td>
<td></td>
<td>2.3.5 A, B</td>
</tr>
<tr>
<td>Scale Drawings</td>
<td></td>
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<tr>
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<tr>
<td>Unit 8 Review and Assessment</td>
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</tbody>
</table>
### Instructional Unit  Perimeter and Area

#### Fourth Grade Math

#### Unit Content

<table>
<thead>
<tr>
<th>Perimeter and Area:</th>
<th>Objective</th>
<th>Performance Indicator</th>
<th>Performance Task</th>
<th>State Standards Code:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The students will be able to determine the area of rectangles, parallelograms, and triangles.</td>
<td>-Develop and use a formula for the area of a rectangle (D).</td>
<td>-math journals</td>
<td>2.3.5 A, B ; 2.4.5 C ; 2.2.5 A-D ; 2.11.5 E</td>
</tr>
<tr>
<td></td>
<td>* to review basic area concepts; to estimate the area of a polygon by counting unit squares; and to use a scale drawing to find area</td>
<td>-Develop and use a formula for the area of a parallelogram (D).</td>
<td>-constructions</td>
<td></td>
</tr>
<tr>
<td></td>
<td>* to estimate the area of a surface having a curved boundary; and to convert measurements from one unit to another</td>
<td>-Develop and use a formula for the area of a triangle (D).</td>
<td>-games</td>
<td></td>
</tr>
<tr>
<td></td>
<td>* to develop and use a formula for the area of a rectangle</td>
<td>-Estimate the area of a figure by counting unit squares and fractions of unit squares inside the figure (D).</td>
<td>-classroom discussion</td>
<td></td>
</tr>
<tr>
<td></td>
<td>* to review the properties of parallelograms, and to develop and use a formula for the area of a parallelogram</td>
<td></td>
<td>-demonstrations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>* to develop and use a formula for the area of a triangle</td>
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<td>-unit reviews</td>
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<td>-quizzes</td>
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<td>-tests</td>
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<td>-slate practice</td>
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<td>-math messages</td>
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<td></td>
<td>-mental math and reflexes</td>
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<td></td>
<td>-literature</td>
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</tbody>
</table>

- Kitchen Layout and Perimeter
- Scale Drawings
- Area
- What is the Area of My Skin?
- Formula for the Area of a Rectangle
- Formula for the Area of a Parallelogram
- Formula for the Area of a Triangle
- Geographical Area Measurements
- Unit 8 Review and Assessment
### Instructional Unit: Perimeter and Area

#### Fourth Grade Math

**Unit Content**

- Perimeter and Area:
  - Kitchen Layout and Perimeter
  - Scale Drawings
  - Area
  - What is the Area of My Skin?
  - Formula for the Area of a Rectangle
  - Formula for the Area of a Parallelogram
  - Formula for the Area of a Triangle
  - Geographical Area Measurements
  - Unit 8 Review and Assessment

*Objective*

The students will be able to convert numbers among fractions, decimals, and percents.

*Performance Indicator*

- Find a percent or a fraction of a number (D).
- Give equivalencies between “easy” fractions (fourths, fifths, and tenths), decimals, and percents (D).
- Give equivalencies between hundredths-fractions, decimals, and percents (S).
- Use a calculator to rename any fraction as a decimal or percent (S).

*Performance Task*

- Math journals
- Constructions
- Games
- Classroom discussion
- Demonstrations
- Unit reviews
- Quizzes
- Tests
- Slate practice
- Math messages
- Mental math and reflexes
- Literature

*State Standards Code:*

2.1.5 B, D; 2.5.5 C

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**Rates:**

- Introducing Rates
- Solving Rate Problems
- Converting Between Rates
- Comparison Shopping: Part 1
- Comparison Shopping: Part 2
- World Tour Wrap-Up (Optional)
- Review and Assessment

*Objective*

The students will be able to express an understanding of everyday problems involving rate.

*Performance Indicator*

- Collect and compare rate data (D).
- Use a rate table to solve rate problems (D).
- Check the validity of data by converting them to more accessible rates (D).
- Calculate and compare unit prices (D).

*Performance Task*

- Math journals
- Constructions
- Games
- Classroom discussion
- Demonstrations
- Unit reviews
- Quizzes
- Tests
- Slate practice
- Math messages
- Mental math and reflexes
- Literature

*State Standards Code:*

2.11.5 D; 2.5.5 A-F
## Instructional Unit  | Reflections and Symmetry
---|---
## Fourth Grade Math
### Unit Content
<table>
<thead>
<tr>
<th>Reflections and Symmetry:</th>
<th>Objective</th>
<th>Performance Indicator</th>
<th>Performance Task</th>
<th>State Standards Code:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explorations with a Transparent Mirror</td>
<td>The students will be able to explain the concept of adding integers.</td>
<td>-Use a number line and transparent mirror to reflect positive numbers (B).</td>
<td>-math journals</td>
<td>- 2.1.5 F</td>
</tr>
<tr>
<td>Finding Lines of Reflection</td>
<td>* to explore the addition of integers</td>
<td>-Play the Credits/Debits Game (B).</td>
<td>-constructions</td>
<td></td>
</tr>
<tr>
<td>Properties of Reflections</td>
<td></td>
<td>-Order numbers from least to greatest (B).</td>
<td>-games</td>
<td></td>
</tr>
<tr>
<td>Line Symmetry</td>
<td></td>
<td>-Add integers (B).</td>
<td>-classroom discussion</td>
<td></td>
</tr>
<tr>
<td>Frieze Patterns</td>
<td></td>
<td></td>
<td>-demonstrations</td>
<td></td>
</tr>
<tr>
<td>Positive and Negative Numbers</td>
<td></td>
<td></td>
<td>-unit reviews</td>
<td></td>
</tr>
<tr>
<td>Review and Assessment</td>
<td></td>
<td></td>
<td>-quizzes</td>
<td></td>
</tr>
<tr>
<td>Reflections and Symmetry:</td>
<td>The students will be able to use the concepts of reflection and symmetry to transform figures.</td>
<td>-Explore reflections of 2-dimensional figures using a transparent mirror (B).</td>
<td>-tests</td>
<td></td>
</tr>
<tr>
<td>Explorations with a Transparent Mirror</td>
<td>* to explore reflections of 2-dimensional figures</td>
<td>-Identify lines of reflection and symmetry (S).</td>
<td>-slate practice</td>
<td></td>
</tr>
<tr>
<td>Finding Lines of Reflection</td>
<td>* to explore reflections; and to identify lines of Reflection</td>
<td>-Use a transparent mirror to draw the reflection of a figure (S).</td>
<td>-math messages</td>
<td></td>
</tr>
<tr>
<td>Properties of Reflections</td>
<td>* to discover basic properties of reflections</td>
<td>-Translate figures (D).</td>
<td>-mental math and reflexes</td>
<td></td>
</tr>
<tr>
<td>Line Symmetry</td>
<td>* to explore the connection between reflections and line symmetry</td>
<td>-Rotate figures (B).</td>
<td>-literature</td>
<td></td>
</tr>
<tr>
<td>Frieze Patterns</td>
<td>* to explore an application of reflections, rotations, and translations</td>
<td>-Create frieze patterns (B).</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Instructional Unit  
**Shapes, Weight, Volume, and Capacity**

**Fourth Grade Math**

<table>
<thead>
<tr>
<th>Unit Content</th>
<th>Objective</th>
<th>Performance Indicator</th>
<th>Performance Task</th>
<th>State Standards Code:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shapes, Weight, Volume, and Capacity:</td>
<td>The students will be able to solve subtraction problems involving positive and negative numbers.</td>
<td>-Subtract positive and negative integers (B). -Play the Credits/Debits Game (B).</td>
<td>-completion of the math journal -constructions -games -classroom discussion -demonstrations -unit reviews -quizzes -tests -slate practice -math messages -mental math and reflexes -literature</td>
<td>2.1.5 C, F ; 2.4.5 C, D</td>
</tr>
<tr>
<td>Weight</td>
<td></td>
<td>* to add and subtract positive and negative integers</td>
<td></td>
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<tr>
<td>Geometric Solids</td>
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<tr>
<td>Constructing Geometric Solids</td>
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<tr>
<td>A Volume Exploration</td>
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<tr>
<td>A Formula for the Volume of Rectangular Prisms</td>
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<tr>
<td>Subtraction of Positive and Negative Numbers</td>
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<tr>
<td>Capacity and Weight</td>
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<tr>
<td>Review and Assessment</td>
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</tr>
</tbody>
</table>

### Shapes, Weight, Volume, and Capacity:

| Weight                |                                                                       |                                                                                      |                                                                                 |                              |
| Geometric Solids      |                                                                       |                                                                                      |                                                                                 |                              |
| Constructing Geometric Solids |                                                                     |                                                                                      |                                                                                 |                              |
| A Volume Exploration  |                                                                       |                                                                                      |                                                                                 |                              |
| A Formula for the Volume of Rectangular Prisms |                                                                     |                                                                                      |                                                                                 |                              |
| Subtraction of Positive and Negative Numbers |                                                                     |                                                                                      |                                                                                 |                              |
| Capacity and Weight   |                                                                       |                                                                                      |                                                                                 |                              |
| Review and Assessment |                                                                       |                                                                                      |                                                                                 |                              |

### Subtraction of Positive and Negative Numbers

- **Objective**: The students will be able to solve addition problems involving positive and negative numbers.
- **Performance Indicator**: -Add positive and negative integers (D). -Play the Credits/Debits Game (D).
- **Performance Task**: -math journals -constructions -games -classroom discussion -demonstrations -unit reviews -quizzes -tests -slate practice -math messages -mental math and reflexes -literature
- **State Standards Code**: 2.1.5 F ; 2.2.5 G
### Instructional Unit  
**Shapes, Weight, Volume, and Capacity**

#### Fourth Grade Math

<table>
<thead>
<tr>
<th>Unit Content</th>
<th>Objective</th>
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<th>State Standards Code:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shapes, Weight, Volume, and Capacity: Weight</td>
<td>The students will be able to explore the properties of 3-dimensional shapes and volumes of rectangular prisms.</td>
<td>-Identify properties of solids (D). -Classify geometric solids (D). -Develop and use a formula to find the volume of rectangular prisms (B)</td>
<td>-math journals -constructions -games -classroom discussion -demonstrations -unit reviews -quizzes -tests -slate practice -math messages -mental math and reflexes -literature</td>
<td>2.9.5 A, D, E, F, J</td>
</tr>
<tr>
<td>Shapes, Weight, Volume, and Capacity: Weight</td>
<td>The students will be able to use grams and ounces to estimate the weight of objects.</td>
<td>-Estimate the weight of objects (D). -Weigh objects in ounces or grams (D)</td>
<td>-math journals -constructions -games -classroom discussion -demonstrations -unit reviews -quizzes -tests -slate practice -math messages -mental math and reflexes -literature</td>
<td>2.3.5 A</td>
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- **Geometric Solids**
- **Constructing Geometric Solids**
- **A Volume Exploration**
- **A Formula for the Volume of Rectangular Prisms**
- **Subtraction of Positive and Negative Numbers**
- **Capacity and Weight**
- **Review and Assessment**
### Instructional Unit  
Using Numbers and Organizing Data

### Fourth Grade Math

#### Unit Content

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<tr>
<td><strong>Using Numbers and Organizing Data:</strong></td>
<td><strong>The students will be able to collect, organize, display, and analyze data.</strong></td>
<td><strong>-Display data with a line plot, bar graph, or tally chart (D).</strong></td>
<td><strong>2.6.5 A, B, E ; 2.11.5 C</strong></td>
</tr>
<tr>
<td>A Visit to Washington, D.C. (Optional)</td>
<td><strong>-to organize and display data with a tally chart; and to determine the maximum, minimum, range, and mode of a set data</strong></td>
<td><strong>-Determine the statistical landmarks median, mode, and range (D).</strong></td>
<td></td>
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<tr>
<td>Many Names for Numbers</td>
<td><strong>-to review how to display a set of data with a line plot, and to review how to find the median of a set of data</strong></td>
<td><strong>-Determine the statistical landmarks maximum and minimum (S).</strong></td>
<td></td>
</tr>
<tr>
<td>Place Value in Whole Numbers</td>
<td><strong>-to measure length to the nearest _ centimeter; and to make and use bar graphs for a set of collected data.</strong></td>
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<td>The Median</td>
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<td><strong>Using Numbers and Organizing Data:</strong></td>
<td><strong>The students will be able to use a successful strategy for subtracting and adding multidigit numbers.</strong></td>
<td><strong>-Demonstrate a successful strategy for subtracting multidigit numbers (S).</strong></td>
<td><strong>2.2.5 B, C</strong></td>
</tr>
<tr>
<td>A Visit to Washington, D.C. (Optional)</td>
<td><strong>-to review the partial-sums method for addition; and to introduce a column-addition method similar to the traditional addition algorithm</strong></td>
<td><strong>-Demonstrate a successful strategy for adding multidigit numbers (S).</strong></td>
<td></td>
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<tr>
<td>Many Names for Numbers</td>
<td><strong>-to review the trade-first and counting –up methods for subtraction; and to introduce the partial-differences method for subtraction</strong></td>
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**Instructional Unit**  
*Using Numbers and Organizing Data*

**Fourth Grade Math**

**Unit Content**

**Using Numbers and Organizing Data:**

- A Visit to Washington, D.C. (Optional)
- Many Names for Numbers
- Place Value in Whole Numbers
- Organizing and Displaying Data
- The Median
- Addition of Multidigit Numbers
- Displaying Data with a Bar Graph
- Subtraction of Multidigit Numbers
- Review and Assessment

**Objective**

The students will be able to adapt place value to read and write numerals to hundred-millions.

* to find equivalent names for numbers
* to name values of digits in numbers up to hundred-millions; and to read and write numbers up to hundred-millions
* to practice place-value skills though a calculator routine; and to read and write large numbers

**Performance Indicator**

- Read and write numerals to hundred-millions (S).
- Give the value of the digits in numerals to hundred-millions (S).
- Generate equivalent names for numbers (S).

**Performance Task**

- Math journals
- Constructions
- Games
- Classroom discussion
- Demonstrations
- Unit reviews
- Quizzes
- Tests
- Slate practice
- Math messages
- Mental math and reflexes
- Literature

**State Standards Code:**

2.1.5 A