

**West Virginia Academic Standards, Grade 4  
correlated to  
Academic Language Notebooks, The Language of Math  
Level D**

**Standard 1: Numbers and Operations**

**M.S. 4.1** Through communication, representation, reasoning and proof, problem solving, and making connections within and beyond the field of mathematics, students will •demonstrate understanding of numbers, ways of representing numbers, and relationships among numbers and number systems,  
• demonstrate meanings of operations and how they relate to one another, and  
• compute fluently and make reasonable estimates.

<b>Standard</b>	<b>Module Number and Name</b>
<b>M.O.4.1.1</b> read, write, order, and compare whole numbers to the millions place and decimals to thousandths place using a variety of strategies (e.g. symbols, manipulatives, number line, pictorial representations).	Module 1: Place Value Module 2: Compare and Order Numbers Module 30: Decimal Concepts
<b>M.O.4.1.2</b> demonstrate an understanding of the place value of each digit utilizing standard and expanded form through 1,000,000 with multiples of 10 [(5 X 10,000) + (3 X 1,000) + (4 X 10) + 2].	Module 1: Place Value
<b>M.O.4.1.3</b> estimate solutions to problems including rounding, benchmarks, compatible numbers and evaluate the reasonableness of the solution, justify results.	Module 6: Estimation
<b>M.O.4.1.4</b> using concrete models, benchmark fractions, number line • compare and order fractions with like and unlike denominators • add and subtract fractions with like and unlike denominators • model equivalent fractions • model addition and subtraction of mixed numbers with and without regrouping.	Module 27: Compare and Order Equivalent Fractions Module 28: Mixed Numbers and Improper Fractions Module 29: Add and Subtract Fractions and Mixed Numbers with Like and Unlike Denominators
<b>M.O.4.1.5</b> analyze the relationship of fractions to decimals using concrete objects and pictorial representations.	Module 30: Decimal Concepts
<b>M.O.4.1.6</b> round decimals to the nearest whole, 10th, or 100th place.	

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<b>Standard</b>	<b>Module Number and Name</b>
<b>M.O.4.1.7</b> add and subtract whole numbers (up to five –digit number) and decimals to the 1000th place, multiply (up to three digits by two-digits, and divide(up to a three digit number with a one and two-digit number).	Module 7: Multiplication and Division Concepts Module 8: Multiplication Properties and Division Rules Module 9: Multiplication and Division Facts: Module 10: Model Multiplication by 1- and 2-Digit Numbers Module 11: Model Division by 1- and 2-Digit Numbers
<b>M.O.4.1.8</b> solve multi-digit whole number multiplication problems using a variety of strategies, including the standard algorithm, justify methods used.	Module 10: Model Multiplication by 1- and 2-Digit Numbers
<b>M.O.4.1.9</b> quick recall of basic multiplication facts and corresponding division facts.	Module 9: Multiplication and Division Facts
<b>M.O.4.1.10</b> create grade-level real-world appropriate story problems using multiple strategies including simple ratios, justify the reason for choosing a particular strategy and present results.	
<b>Standard 2: Numbers and Operations</b>	
<p><b>M.S. 4.2</b> Through communication, representation, reasoning and proof, problem solving, and making connections within and beyond the field of mathematics, students will</p> <ul style="list-style-type: none"> <li>• demonstrate understanding of patterns, relations and functions,</li> <li>• represent and analyze mathematical situations and structures using algebraic symbols,</li> <li>• use mathematical models to represent and understand quantitative relationships, and</li> <li>• analyze change in various contexts.</li> </ul>	

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<b>Standard</b>	<b>Module Number and Name</b>
<b>M.O.4.2.1</b> determine the rule and explain how change in one variable relates to the change in the second variable, given an input/output model using two operations.	Module 15: Patterns and Functions
<b>M.O.4.2.2</b> recognize and describe relationships in which quantities change proportionally.	
<b>M.O.4.2.3</b> represent the idea of a variable as an unknown quantity using a letter, write an expression using a variable to describe a real-world situation.	Module 13: Algebraic Expressions Module 14: Algebraic Equations
<b>M.O.4.2.4</b> solve real-world problems involving order of operations including grouping symbols and the four operations,	Module 13: Algebraic Expressions
<b>Standard 3: Geometry</b>	
<p><b>M.S. 4.3</b> Through communication, representation, reasoning and proof, problem solving, and making connections within and beyond the field of mathematics, students will</p> <ul style="list-style-type: none"> <li>• analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships,</li> <li>• specify locations and describe spatial relationships using coordinate geometry and other representational systems,</li> <li>• apply transformations and use symmetry to analyze mathematical situations, and</li> <li>• solve problems using visualization, spatial reasoning, and geometric modeling.</li> </ul>	
<b>Standard</b>	<b>Module Number and Name</b>
<b>M.S. 4.3.1</b> identify, classify, compare and contrast two-dimensional (including quadrilateral shapes) and three-dimensional geometric figures according to attributes.	Module 22: Polygons and Circles Module 23: Solid Figures and Volume
<b>M.S. 4.3.2</b> recognize and describe three-dimensional objects from different perspectives.	Module 23: Solid Figures and Volume
<b>M.S. 4.3.3</b> identify, draw, label, compare and contrast, and classify <ul style="list-style-type: none"> <li>• lines (intersecting, parallel, and perpendicular)</li> <li>• angles (acute, right, obtuse, and straight)</li> </ul>	Module 21: Points, Lines, Line Segments, Rays, and Angles

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<b>Standard</b>	<b>Module Number and Name</b>
<b>M.S. 4.3.4</b> identify and create a two-dimensional design with one line of symmetry.	Module 23: Transformations and Symmetry
<b>M.S. 4.3.5</b> graph/plot ordered pairs on a first-quadrant grid and use the coordinate system to specify location and describe path.	
<b>M.S. 4.3.6</b> draw and identify parts of a circle: center point, diameter, and radius.	Module 22: Polygons and Circles
<b>M.S. 4.3.7</b> select, analyze and justify appropriate use of transformations (translations, rotations, flips) to solve geometric problems including congruency and tiling (tessellations).	Module 23: Transformations and Symmetry
<b>Standard 4: Measurement</b>	
<p><b>M.S. 4.4</b> Through communication, representation, reasoning and proof, problem solving, and making connections within and beyond the field of mathematics, students will</p> <ul style="list-style-type: none"> <li>• demonstrate understanding of measurable attributes of objects and the units, systems, and processes of measurement, and</li> <li>• apply appropriate techniques, tools and formulas to determine measurements.</li> </ul>	
<b>Standard</b>	<b>Module Number and Name</b>
<b>M.S. 4.4.1</b> select appropriate measuring tools, apply and convert standard units within a system to estimate, measure, compare and order real-world measurements including: <ul style="list-style-type: none"> <li>• lengths using customary (to the nearest one-fourth inch) and metric units,</li> <li>• weight,</li> <li>• capacity,</li> <li>• temperature, and</li> </ul> justify and present results.	Module 17: Measures of Length (Customary and Metric) Module 18: Measures of Capacity and Weight/Mass (Customary and Metric)
<b>M.S. 4.4.2</b> Quantify area by finding the total number of same sized units that cover a shape, develop a rule and justify the formula for the area of a rectangle using the area model representing multiplication.	Module 24: Perimeter and Area

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<b>Standard</b>	<b>Module Number and Name</b>
<b>M.S. 4.4.3</b> read time to the minute, calculate elapsed time in hours/minutes within a 24-hour period.	Module 16: Time
<b>M.S. 4.4.4</b> given real-world situations, count coins and bills and determine correct change.	Module 4: Money
<b>Standard 5: Data</b>	
<p><b>M.S. 4.5</b> Through communication, representation, reasoning and proof, problem solving, and making connections within and beyond the field of mathematics, students will:</p> <ul style="list-style-type: none"> <li>• formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them,</li> <li>• select and use appropriate statistical methods to analyze data,</li> <li>• develop and evaluate inferences and predictions that are based on models, and</li> <li>• apply and demonstrate an understanding of basic concepts of probability.</li> </ul>	
<b>Standard</b>	<b>Module Number and Name</b>
<b>M.S. 4.5.1</b> read and interpret information represented on a circle graph.	Module 20: Read and Make Graphs
<b>M.S. 4.5.2</b> pose a grade-appropriate question that can be addressed with data, collect, organize, display, and analyze data in order to answer the question.	Module 20: Read and Make Graphs
<b>Standard</b>	<b>Module Number and Name</b>
<b>M.S. 4.5.3</b> design and conduct a simple probability experiment using concrete objects, examine and list all possible combinations using a tree diagram, represent the outcomes as a ratio and present the results.	
<b>M.S. 4.5.4</b> solve real world problems using mean, median and mode.	Module 19: Collect and Organize Data