West Virginia math4life

Content and Timeline for Mathematics

Grade 4

West Virginia DEPARTMENT OF EDUCATION

Grade 4

The West Virginia College- and Career-Readiness Standards for mathematics emphasize key content, skills, and Mathematical Habits of Mind at each grade level. The focus of instruction is placed on grade-level standards. Instruction should be attentive to learning across all early and elementary learning grades and link major topics within grades. Instruction should develop conceptual understanding, procedural skill and fluency, and application.

Students in the fourth grade will focus on three critical areas: (1) developing understanding and fluency with multi-digit multiplication, and developing understanding of dividing to find quotients involving multi-digit dividends; (2) developing an understanding of fraction equivalence, addition and subtraction of fractions with like denominators, and multiplication of fractions by whole numbers; (3) understanding that geometric figures can be analyzed and classified based on their properties, such as having parallel sides, perpendicular sides, particular angle measures, and symmetry.

The following table highlights the content at the cluster level for fourth grade standards. The bulk of instructional time should be given to the clusters and the standards within them. Standards should not be neglected; to do so would result in gaps in students' learning, including skills and understandings they may need in later grades. Instruction should reinforce standards within the clusters by including problems and activities that support natural connections between clusters. **Teachers and administrators alike should note that the standards are not topics to be checked off after being covered in isolated units of instruction;** rather, they provide content to be developed throughout the school year through rich instructional experiences presented in a coherent manner.

Explanations

Domains are broad components that make up a content area. Domains in mathematics vary by grade-level and by course. For example, the five domains for mathematics in Grade 4 are Operations and Algebraic Thinking, Number and Operations in Base Ten, Number and Operations-Fractions, Measurement and Data, and Geometry.

Clusters are groups of standards that define the expectations students must demonstrate to be college- and career-ready.

Standards are expectations for what students should know, understand and be able to do; standards represent educational goals.

Grade 4 Cluster-Level Emphasis	West Virginia College- and Career-Readiness Standards
Operations and Algebraic Thinking	
• Use the four operations with whole numbers to solve problems. • Gain familiarity with factors and multiples. • Generate and analyze patterns.	M.4.1- M.4.3 M.4.4 M.4.5
Number and Operations in Base Ten	
• Generalize place value understanding for multi-digit whole numbers. • Use place value understanding and properties of operations to perform multi-digit arithmetic.	M.4.6 - M.4.8 M.4.9 - M.4.11
Number and Operations- Fractions	
• Extend understanding of fraction equivalence and ordering. • Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers. • Understand decimal notation for fractions, and compare fractions.	M.4.12 - M.4.13 M.4.14 - M.4.15 M.4.16 - M.4.18
Measurement and Data	
• Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit. • Represent and interpret data. • Geometric measurement: understand concepts of angle and measure angles	M.4.19 – M.4.21 M.4.22 M.4.23 – M.4.25
Geometry	
• Draw and identify lines and angles and classify shapes by properties of their lines and angles.	M.4.26 – M.4.28

Adapted from California Mathematics Framework

Grade 4 Sample Content Plan

Curricula and how and when to teach certain topics are the responsibility of the classroom teacher. The following chart is an example of how a teacher might structure the school year to ensure all grade-level standards are taught. Teachers must provide students the opportunity to master each of the grade-level content standards. **It is important to understand that neglecting grade-level content standards, will leave gaps in students' skills and understandings and will leave students unprepared for the challenges they face in later grades.** Any content plan must demonstrate a means by which students can be provided the opportunity to address all grade-level content standards and to revisit and practice skills and strengthen understandings throughout the school year. The information below is an example of how to address all Grade 4 mathematics standards in a school year.

DOMAIN TOPIC	**Measurement and Data** *Understanding Unit Measurement*	**Numbers and Operations is Base Ten** *Understanding Place Value and Multiplication*	**Operations and Algebraic Thinking** *Understanding Patterns and Relationships*	**Numbers and Operations Fractions** *Understanding Fractions*	**Geometry** *Understanding the properties of shape*
SAMPLE TIMELINE	August/ September	October/ November	November/ January	February/ March	March/ May
CONTENT STANDARDS	M.4.19 M.4.20 M.4.21 M.4.22 M.4.23 M.4.24 M.4.25	M.4.6 M.4.7 M.4.8 M.4.9 M.4.10 M.4.11	M.4.1 M.4.2 M.4.3 M.4.4 M.4.5	M.4.12 M.4.13 M.4.14 M.4.14 M.4.16 M.4.17 M.4.18	M.4.26 M.4.27 M.4.28
RATIONALE	In the sample above, Grade 4 mathematics begins with students converting among different-sized measurement units within a given measurement system allowing for efficient and accurate problem solving with multi-step real-world problems. Students will need ample opportunities to become familiar with new units of measure. Students in grade four begin using the four operations to solve word problems involving measurement quantities such as liquid volume, mass, and time, including problems involving simple fractions or decimals. In grade three, students developed an understanding of area and perimeter by using visual models				

Steven L. Paine, Ed.D.
West Virginia Superintendent of Schools