

A Correlation of



to the

**West Virginia Mathematics
Specific Criteria for
Content and Skills**

Grades K–5



T/M-147C

INTRODUCTION

This document demonstrates how *Investigations in Number, Data, and Space*[®] supports the West Virginia Mathematics Specific Criteria for Content and Skills. The citations within this correlation provide Investigation Curriculum Unit titles, followed by the Investigation number and Session number or Focus Time/Choice Time title. Additional citations to other program features may be included.

Investigations in Number, Data, and Space[®], a Kindergarten through Grade 5 program, offers a complete and flexible curriculum that aligns with the NCTM principles and Standards for School Mathematics. The main teaching tool is a single resource book, called the *teacher book*, for each unit in a grade level. Students explore the central topics in depth through a series of investigations, gradually encountering and using many important mathematical ideas. *Investigations* offers activity-based mathematics that encourage students to think creatively, develop their own strategies, and work together. Students practice skills through games, daily routines, activities, and practice pages.

The program blends concrete materials with appropriate technology. The software provided with several *Investigations* units harnesses the power of computers to help students explore mathematical ideas and relationships that cannot be explored in the same way with physical materials. A balanced approach to calculator use is found in the program.

Developed by TERC under a grant from the National Science Foundation, *Investigations in Number, Data, and Space*[®] is comprehensive in its approach to students of diverse learning styles, students from different cultures, and students of different language groups. In an effort to give mathematical lessons a broader spectrum, students are encouraged to explore working in groups, individually and as a whole class. By incorporating these methods into everyday learning, students learn to express mathematical thinking through talking, drawing, and writing.

Every unit in the Investigations curriculum offers a list of related children's literature that can be used to support the mathematical ideas presented in the unit. This list of books is found in the materials list located in the front of each unit.

Investigations in Number, Data and Space[®] was developed after three years of nationwide field-testing and includes teacher's practical suggestions, student dialogues, and teacher notes. Further information can be found on the Internet at www.scottforesman.com/investigations.

Table of Contents

Kindergarten.....	1
Grade One.....	8
Grade Two.....	20
Grade Three.....	32
Grade Four.....	41
Grade Five.....	52

VENDOR: Pearson Scott Foresman

INSTRUCTIONAL

SUBJECT: Mathematics – Kindergarten

MATERIALS: Teacher’s Curriculum Units

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TE ISBN: Teachers Curriculum Units Pkg. - 0-201-37798-5
Mathematical Thinking at Kindergarten - 0-201-43439-3
Pattern Trains and Hopscotch Paths - 0-201-37804-3
Collecting, Counting, and Measuring - 0-201-37805-1

Counting Ourselves and Others - 0-201-37806-X
How Many in All? – 0-201-37808-6
Making Shapes and Building Blocks - 0-201-37809-4

**West Virginia Mathematics
Specific Criteria for Content and Skills
Kindergarten**

All materials at this grade level (1) be research based and theory driven; (2) incorporate basic, accurate information that is developmentally appropriate; (3) use interactive activities that actively engage students; (4) provide students with opportunities to model and practice relevant skills; (5) develop higher order thinking opportunities; and (6) be based on national standards. The instructional materials should provide students with opportunities to:

West Virginia Specific Criteria	Investigations In Number, Data, and Space
A. NUMBER AND OPERATIONS	
1. count a. forward to 20 w/ & w/o objects	Mathematical Thinking in Kindergarten Investigation 1: Focus Time: Attendance Investigation 2 Investigation 4: Choice Time: Counting Jar Collecting, Counting, and Measuring Investigation 1-5 Counting Ourselves and Others Investigation 1 How Many in All? Investigation 1: Focus Time: Counting and Measuring
b. backwards from 10 w/ & w/o objects (MA.K.1.1)	Mathematical Thinking in Kindergarten Investigation 1: Focus Time: Attendance Investigation 2 Investigation 4: Choice Time: Counting Jar Collecting, Counting, and Measuring Investigation 1-5 Counting Ourselves and Others Investigation 1 How Many in All? Investigation 1: Focus Time: Counting and Measuring

West Virginia Specific Criteria	Investigations In Number, Data, and Space
<p>2. read, write, order, and compare numbers to 20 (MA.K.1.2.)</p>	<p>Mathematical Thinking in Kindergarten Investigation 1: Focus Time: Attendance Investigation 2 Investigation 4: Choice Time: Counting Jar Collecting, Counting, and Measuring Investigation 1-5 Counting Ourselves and Others Investigation 1 How Many in All? Investigation 1: Focus Time: Counting and Measuring</p>
<p>3. count and group concrete objects by ones, fives, tens (MA.K.1.3)</p>	<p>Mathematical Thinking in Kindergarten Investigation 1: Focus Time: Attendance Investigation 2 Investigation 4: Choice Time: Counting Jar Collecting, Counting, and Measuring Investigation 1-5 Counting Ourselves and Others Investigation 1 How Many in All? Investigation 1: Focus Time: Counting and Measuring</p>
<p>4. model and identify place value of each digit using standard and expanded form through 20 (MA.K.1.4)</p>	<p><i>Can be developed from</i> Collecting, Counting, and Measuring Investigation 1-5 Counting Ourselves and Others Investigation 1 How Many in All? Investigation 1: Focus Time: Counting and Measuring</p>
<p>5. identify ordinal positions 1st-10th (MA.K.1.5)</p>	<p>Mathematical Thinking in Kindergarten Investigation 3</p>

West Virginia Specific Criteria	Investigations In Number, Data, and Space
<p>6. estimate the number of objects in a group of 20 or less and count to determine reasonableness (MA.K.1.6)</p>	<p>Every unit of study includes a section entitled About Classroom Routines. Each unit includes Counting Jar, which includes activities on estimation.</p> <p>Mathematical Thinking in Kindergarten Page 69</p> <p>Collecting, Counting, and Measuring Page 103</p> <p>Counting Ourselves and Others Page 97</p> <p>Making Shapes and Building Blocks Page 107</p> <p>How Many in All? Page 101</p>
<p>7. identify and name halves and wholes using concrete items (MA.K.1.7)</p>	<p>Making Shapes and Building Blocks Investigation 4: Choice Time: Fill the Hexagons</p>
<p>8. write the corresponding number sentence and model a. addition of whole numbers using 10 or less items (MA.K.1.8)</p>	<p>Collecting, Counting, and Measuring Investigation 4: Choice Time: Collect 10 Together How Many in All? Investigation 2-4</p>
<p>b. subtraction of whole numbers using 10 or less items (MA.K.1.8)</p>	<p>How Many in All? Investigation 2-4</p>
<p>9. understand meanings of operations and the relationship between addition and subtraction (MA.K.1.9) a. identity element of addition</p>	<p>How Many in All? Investigation 2-4</p>
<p>b. commutative property</p>	<p>How Many in All? Investigation 2-4</p>

West Virginia Specific Criteria	Investigations In Number, Data, and Space
10. solve problems using a variety of strategies. (MA.K.1.10)	Mathematical Thinking in Kindergarten Investigation 4 Pattern Trains and Hopscotch Paths Investigation 4 Collecting, Counting, and Measuring Investigation 1-2, 4-6 Counting Ourselves and Others Investigation 1-2, 4 Making Shapes and Building Blocks Investigation 4 How Many in All? Investigation 2-4
B. ALGEBRA	
1. sort and classify objects by one attribute (MA.K.2.1)	Mathematical Thinking in Kindergarten Investigation 1: Choice Time Investigation 3: Choice Time Pattern Trains and Hopscotch Paths Investigation 1: Focus Time: Cubes: What Do You Notice: Collecting, Counting, and Measuring Investigation 4: Focus Time: Letters in Our Names Counting Ourselves and Others Investigation 2-4
2. a. identify and describe a repeating pattern found in common objects, sound, and movement (MA.K.2.2)	Pattern Trains and Hopscotch Paths Investigation 1-4
b. extend a repeating pattern (MA.K.2.2)	Pattern Trains and Hopscotch Paths Investigation 1-4
3. model and identify patterns of counting by 5's and 10's (MA.K.2.3)	<i>Grade 1</i> Number Games and Story Problems Investigation 2: Sessions 1-8, 10-12

West Virginia Specific Criteria	Investigations In Number, Data, and Space
C. GEOMETRY	
1. use physical materials to construct, identify and classify basic geometric shapes. (MA.K.3.1) <ul style="list-style-type: none"> • circle • square • rectangle • triangle 	Mathematical Thinking in Kindergarten Investigation 1: Choice Time: Exploring Geoblocks Making Shapes and Building Blocks Investigation 1-2, 4-5
2. identify basic geometric shapes in the environment. (MA.K.3.2)	Making Shapes and Building Blocks Investigation 1-2, 4-5
3. model and describe spatial relationships. (MA.K.3.3) <ul style="list-style-type: none"> • inside/outside • top/bottom • before/after 	Patterns, Trains, and Hopscotch Paths Investigation 4: Choice Time: Staircase Patterns Making Shapes and Building Blocks Investigation 2, 3, 4
4. identify the separate parts used to make a whole object. (MA.K.3.4)	Making Shapes and Building Blocks Investigation 4: Choice Time: Fill the Hexagons
D. MEASUREMENT	
1. estimate the size of an object, and compare, and order objects with respect to a given attribute (MA.K.4.1)	How Many in All? Investigation 1 Collecting, Counting, and Measuring Investigation 3
2. a. use standard units of measure to find the length of an object (MA.K.4.2)	Collecting, Counting, and Measuring Investigation 3
b. use nonstandard units of measure to find the length of an object (MA.K.4.2)	How Many in All? Investigation 1 Collecting, Counting, and Measuring Investigation 3

West Virginia Specific Criteria	Investigations In Number, Data, and Space
<p>3. compare two objects in nonstandard units of measure, according to one or more of the following attributes. (MA.K.4.3)</p> <ul style="list-style-type: none"> • length • height • weight 	<p>How Many in All? Investigation 1 Collecting, Counting, and Measuring Investigation 3</p>
<p>4. a. name the days of the week (MA.K.4.4)</p>	<p>Mathematical Thinking in Kindergarten Investigation 3: Focus Time: Calendar About Classroom Routines: Calendar</p>
<p>b. name the seasons of the year (MA.K.4.4)</p>	<p>Mathematical Thinking in Kindergarten Investigation 3: Focus Time: Calendar About Classroom Routines: Calendar</p>
<p>5. read time to the hour using analog and digital clocks (MA.K.4.5)</p>	<p><i>Can be developed from</i> Mathematical Thinking in Kindergarten Investigation 3: Focus Time: Calendar About Classroom Routines: Calendar</p>
<p>6. identify the name and value of a penny, nickel, and dime. (MA.K.4.6)</p>	<p><i>Can be developed from</i> Counting Ourselves and Others Investigation 2: Choice Time: The Grocery Story</p>
<p>7. determine the value of a collection of pennies with a total value less than twenty cents. (MA.K.4.7)</p>	<p><i>Can be developed from</i> Counting Ourselves and Others Investigation 2: Choice Time: The Grocery Story</p>

West Virginia Specific Criteria	Investigations In Number, Data, and Space
E. DATA ANALYSIS AND PROBABILITY	
1. collect, sort, and organize data as a group project (MA.K.5.1)	Mathematical Thinking in Kindergarten Investigation 1: Focus Time: Attendance Investigation 4 Collecting, Counting, and Measuring Investigation 2 Counting Ourselves and Others Investigation 1-4
2. construct graphs using objects and pictures (MA.K.5.2)	Mathematical Thinking in Kindergarten Investigation 1: Focus Time: Attendance Investigation 4 Collecting, Counting, and Measuring Investigation 2 Counting Ourselves and Others Investigation 1-4
3. analyze data represented on a graph using grade level appropriate questions (MA.K.5.3)	Mathematical Thinking in Kindergarten Investigation 1: Focus Time: Attendance Investigation 4 Collecting, Counting, and Measuring Investigation 2 Counting Ourselves and Others Investigation 1-4

VENDOR: Pearson Scott Foresman

INSTRUCTIONAL

SUBJECT: Mathematics – Grade One

MATERIALS: Teacher’s Curriculum Units

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TE ISBN: Teacher’s Curriculum Units Pkg. - 0-201-37799-3

Mathematical Thinking – 0-201-43830-5

Building Number Sense – 0-201-37810-8

Survey Questions and Secret Rules – 0-201-37811-6

Quilt Squares and Block Towns - 0-201-37812-4

Number Games and Story Problems - 0-201-37813-2

Bigger, Taller, Heavier, Smaller - 0-201-37814-0

**West Virginia Mathematics
Specific Criteria for Content and Skills
Grade One**

All materials at this grade level (1) be research based and theory driven; (2) incorporate basic, accurate information that is developmentally appropriate; (3) use interactive activities that actively engage students; (4) provide students with opportunities to model and practice relevant skills; (5) develop higher order thinking opportunities; and (6) be based on national standards. The instructional materials should provide students with opportunities to:

West Virginia Specific Criteria	Investigations In Number, Data, and Space
A. NUMBER AND OPERATIONS	
1. count forward to 100 and backward from 20 with and without objects (MA.1.1.1)	Mathematical Thinking at Grade 1 Investigation 2: Session 1-6 Investigation 4: Session 1-6 Building Number Sense Investigation 1: Session 1-9 Investigation 2: Session 1-9 Investigation 3: Sessions 1-2, 5-7 Number Games and Story Problems Investigation 1: Session 1-10 Investigation 2: Session 1-13
2. read, write, order, and compare numbers to 100 (MA.1.1.2)	Mathematical Thinking at Grade 1 Investigation 2: Session 1-6 Investigation 4: Session 1-6 Building Number Sense Investigation 1: Session 1-9 Investigation 2: Session 1-9 Investigation 3: Sessions 1-2, 5-7 Number Games and Story Problems Investigation 1: Session 1-10 InvInvestigation 2: Session 1-13

West Virginia Specific Criteria	Investigations In Number, Data, and Space
3. model and identify odd and even numbers to 20 with and without objects (MA.1.1.3)	Building Number Sense Investigation 3: Session 1-2
4. count and group concrete items by ones and tens to 100 (MA.1.1.4)	Mathematical Thinking at Grade 1 Investigation 2: Session 1-6 Investigation 4: Session 1-6 Building Number Sense Investigation 1: Session 1-9 Investigation 2: Session 1-9 Investigation 3: Sessions 1-2, 5-7 Number Games and Story Problems Investigation 1: Session 1-10 Investigation 2: Session 1-13
5. model and identify place value of each digit utilizing standard and expanded form to 100 (MA.1.1.5)	Mathematical Thinking at Grade 1 Investigation 2: Session 1-6 Investigation 4: Session 1-6 Building Number Sense Investigation 1: Session 1-8 Investigation 2: Session 1-9 Investigation 3: Sessions 1-2, 5-7 Number Games and Story Problems Investigation 1: Session 1-10 Investigation 2: Session 1-13
6. round any two digit number to nearer 10 (MA.1.1.6)	<i>Can be developed from</i> Grade 2 Putting Together, Taking Apart Investigation 2: Session 3-4 Investigation 4: Session 1-2 <i>Can be developed from</i> Grade 3 Fair Shares Investigation 3: Session 1-2

West Virginia Specific Criteria	Investigations In Number, Data, and Space
7. identify and read ordinal numbers 1st through 20th (MA.1.1.7)	Building Number Sense Investigation 3: Sessions 5-7, 9 Number Games and story Problems Investigation 2: Session 4-8
8. estimate the number of objects in a group of 100 or less and count to determine reasonableness of estimate (MA.1.1.8)	Building Number Sense Investigation 3: Session 9 Quilt Squares and Block Towns Investigation 3: Session 6-7 Bigger, Taller, Heavier, Smaller Investigation 2: Session 1
9. a. identify and name halves, thirds, and fourths as part of a whole, using models (MA.1.1.9)	<i>Grade 2</i> Shapes, Halves and Symmetry Investigation 3: Session 1-8
b. identify and name halves, thirds and fourths as part of a group, using models (MA.1.1.9)	<i>Grade 2</i> Shapes, Halves and Symmetry Investigation 3: Session 1-8
10. a. model addition of whole numbers using 18 or less items and write the corresponding number sentence (MA.1.1.10)	Mathematical Thinking at Grade 1 Investigation 2: Session 2-6 Investigation 4: Sessions 2-4, 6 Building Number Sense Investigation 2: Session 1-9 Investigation 4: Sessions 1, 3-10 Number Games and Story Problems Investigation 1: Session 1-10 Investigation 3: Sessions 1, 3-13
b. model subtraction of whole numbers using 18 or less items and write the corresponding number sentence	Building Number Sense Investigation 4: Sessions 2, 7-10 Number Games and Story Problems Investigation 3: Sessions 2, 6-8, 10-13

West Virginia Specific Criteria	Investigations In Number, Data, and Space
<p>11. understand the relationship between addition and subtraction (MA.1.1.11) a. identify element of addition</p>	<p>Mathematical Thinking at Grade 1 Investigation 2: Session 2-6 Investigation 4: Sessions 2-4, 6 Building Number Sense Investigation 2: Session 1-9 Investigation 4: Sessions 1, 3-10 Number Games and Story Problems Investigation 1: Session 1-10 Investigation 3: Sessions 1, 3-13</p>
<p>b. commutative property</p>	<p>Mathematical Thinking at Grade 1 Investigation 2: Session 2-6 Investigation 4: Sessions 2-4, 6 Building Number Sense Investigation 2: Session 1-9 Investigation 4: Sessions 1, 3-10 Number Games and Story Problems Investigation 1: Session 1-10 Investigation 3: Sessions 1, 3-13</p>
<p>c) fact families</p>	<p>Mathematical Thinking at Grade 1 Investigation 2: Session 2-6 Investigation 4: Sessions 2-4, 6 Building Number Sense Investigation 2: Session 1-9 Investigation 4: Session 1-10 Number Games and Story Problems Investigation 1: Session 1-10 Investigation 3: Sessions 1-13</p>
<p>d) inverse operations</p>	<p>Mathematical Thinking at Grade 1 Investigation 2: Session 2-6 Investigation 4: Sessions 2-4, 6 Building Number Sense Investigation 2: Session 1-9 Investigation 4: Session 1-10 Number Games and Story Problems Investigation 1: Session 1-10 Investigation 3: Sessions 1-13</p>

West Virginia Specific Criteria	Investigations In Number, Data, and Space
12. a. memorize basic addition facts with sums to 10 (MA.1.1.12)	Mathematical Thinking at Grade 1 Investigation 2: Session 2-6 Investigation 4: Sessions 2-4, 6 Building Number Sense Investigation 2: Session 1-9 Investigation 4: Sessions 1, 3-10 Number Games and Story Problems Investigation 1: Session 1-10 Investigation 3: Sessions 1, 3-13
b. memorize basic subtraction facts with differences from 10 (MA.1.1.12)	Building Number Sense Investigation 4: Session 2, 7-10 Number Games and Story Problems Investigation 3: Sessions 2, 6-8, 10-13
13. a. model two digit addition without regrouping (MA.1.1.13)	<i>Can be developed from</i> Building Number Sense Investigation 4: Session 1-10 Number Games and Story Problems Investigation 3: Session 1-13
b. model two digit subtraction without regrouping (MA.1.1.13)	<i>Can be developed from</i> Building Number Sense Investigation 4: Session 1-10 Number Games and Story Problems Investigation 3: Session 1-13
14. add three numbers with a sum of 18 or less (MA.1.1.14)	<i>Can be developed from</i> Building Number Sense Investigation 4: Session 1-10 Number Games and Story Problems Investigation 3: Session 1-13

West Virginia Specific Criteria	Investigations In Number, Data, and Space
15. solve picture and story problems using multiple strategies (MA.1.1.15)	Mathematical Thinking at Grade 1 Investigation 4: Session 5-6 Building Number Sense Investigation 4: Sessions 3-5, 7-10 Number Games and Story Problems Investigation 1: Session 10 Investigation 2: Session 13 Investigation 3: Session 3-13
B. ALGEBRA	
1. sort and classify objects by more than one attribute (MA.1.2.1)	Mathematical Thinking at Grade 1 Investigation 5: Session 3-6 Survey Questions and Secret Rules Investigation 1: Session 1-6 Investigation 2: Session 3-4 Investigation 4: Session 2-3 Quilt Squares and Block Towns Investigation 1: Session 11-12 Investigation 2: Session 1-3
2. analyze and create a repeating pattern using common objects and numbers (MA.1.2.2)	Mathematical Thinking at Grade 1 Investigation 3: Session 1-6 Investigation 4: Sessions 2-3, 5 Building Number Sense Investigation 3: Session 8 Investigation 4: Session 10 Survey Questions and Secret Rules Investigation 3: Session 2-3 Quilt Squares and Block Towns Investigation 1: Session 13-15 Number Games and Story Problems Investigation 2: Sessions 2, 6-9
3. use input/output model with functions (MA.1.2.3)	Building Number Sense Investigation 3: Session 1-8 Number Games and Story Problems Investigation 2: Sessions 1-2, 6-9

West Virginia Specific Criteria	Investigations In Number, Data, and Space
4. identify and write number patterns by 2's, 5's, and 10's (MA.1.2.4)	Building Number Sense Investigation 3: Session 1-7 Number Games and Story Problems Investigation 2: Sessions 1-2, 6-12
5. identify and represent number patterns using words, AB form and T-charts (MA.1.2.5)	Building Number Sense Investigation 3: Session 1-7 Number Games and Story Problems Investigation 2: Sessions 1-2, 6-12
6. use models to demonstrate that the quantities on each side of a number sentence are equivalent (MA.1.2.6)	Mathematical Thinking at Grade 1 Investigation 2: Session 4-6 Investigation 4: Session 4-6 Building Number Sense Investigation 2: Sessions 1-2, 6-9 Investigation 4: Sessions 1-5, 7-10 Number Games and Story Problems Investigation 1: Sessions 1-3, 6, 10 Investigation 2: Session 10-13 Investigation 3: Session 1-13
C. GEOMETRY	
1. draw and describe according to number of sides and vertices (MA.1.3.1) <ul style="list-style-type: none"> • triangles • squares • circles • rectangles 	Mathematical Thinking at Grade 1 Investigation 1: Session 1 Survey Questions and Secret Rules Investigation 1: Session 1-2 Quilt Squares and Block Towns Investigation 1: Session 1-15

West Virginia Specific Criteria	Investigations In Number, Data, and Space
<p>2. use physical materials to construct, identify, and classify three dimensional figures (MA.1.3.2)</p> <ul style="list-style-type: none"> • cube • cone • sphere • rectangular solid • pyramid • cylinder 	<p>Mathematical Thinking at Grade 1 Investigation 1: Session 1 Quilt Squares and Block Towns Investigation 2: Session 1-10 Investigation 3: Session 1-5</p>
<p>3. identify three dimensional shapes in the environment (MA.1.3.3)</p>	<p>Quilt Squares and Block Towns Investigation 1: Session 1 Investigation 2: Sessions 1-3, 7 Investigation 3: Session 3-5</p>
<p>4. identify and draw open and closed figures (MA.1.3.4)</p>	<p><i>Can be developed from</i> Quilt Squares and Block Towns Investigation 1: Session 1</p> <p><i>See also:</i> Grade K Making Shapes and Building Blocks Investigation 2: Focus Time and Choice Time</p>

West Virginia Specific Criteria	Investigations In Number, Data, and Space
5. identify, determine, and draw a line of symmetry (MA.1.3.5)	Mathematical Thinking at Grade 1 Investigation 1: Session 1 Quilt Squares and Block Towns Investigation 1: Sessions 1, 13-15
6. identify and draw plane shapes that are congruent (MA.1.3.6)	Mathematical Thinking at Grade 1 Investigation 1: Session 1 Quilt Squares and Block Towns Investigation 1: Session 1-15 Investigation 2: Session 1-10
7. describe spatial relationships (MA.1.3.7) <ul style="list-style-type: none"> • over/under • left/right 	Quilt Squares and Block Towns Investigation 3: Session 6-7
8. find and name locations with simple relationships on a coordinate system (MA.1.3.8)	Quilt Squares and Block Towns Investigation 3: Session 6-7
9. describe the shape created by combining two or more tow dimensional shapes (MA.1.3.9)	Quilt Squares and Block Towns Investigation 1: Sessions 3-10, 13-15 Investigation 2: Session 4-10 Investigation 3: Session 1-4
D. MEASUREMENT	
1. estimate, measure, compare, and order using customary, metric, and nonstandard units to determine length to nearest whole unit (MA.1.4.1)	Bigger, Taller, Heavier, Smaller Investigation 3: Session 1-5
2. understand conversions within a system of measurement (MA.1.4.2)	Bigger Taller, Heavier, Smaller Investigation 1: Session 1-6 Investigation 2: Session 1-7 Investigation 3: Session 1-5

West Virginia Specific Criteria	Investigations In Number, Data, and Space
<p>3. compare two objects or events according to one or more of the following attributes (MA.1.4.3)</p> <ul style="list-style-type: none"> • length • height • weight • time temperature • volume 	<p>Bigger Taller, Heavier, Smaller Investigation 1: Session 1-6 Investigation 2: Session 1-7 Investigation 3: Session 1-5</p>
<p>4. name the months of the year and find a date on a monthly calendar (MA.1.4.4)</p>	<p>Survey Questions and Secret Rules Investigation 3: Session 1-3</p>
<p>5. explain time concept in context of personal experience (MA.1.4.5)</p>	<p>In an appendix at the end of each text is Classroom Routines – Time and Change, consisting of activities in which students explore units of time, relationships among them and daily schedules.</p>
<p>6. read time to the half hour using an analog and digital clock (MA.1.4.6)</p>	<p>In an appendix at the end of each text is Classroom Routines – Time and Change, consisting of activities in which students explore units of time, relationships among them and daily schedules.</p>
<p>7. calculate elapsed time to the hour (MA.1.4.7)</p>	<p>In an appendix at the end of each text is Classroom Routines – Time and Change, consisting of activities in which students explore units of time, relationships among them and daily schedules.</p>
<p>8. identify the name and value of quarter and dollar (MA.1.4.8)</p>	<p>Number Games and Story Problems Investigation 2: Session 3</p>

West Virginia Specific Criteria	Investigations In Number, Data, and Space
9. a. count a collection of pennies, nickels, and dimes with a total value of 100 cents or less (MA.1.4.9)	Number Games and Story Problems Investigation 2: Session 3
b. trade a collection of pennies, nickels, dimes with a total value of 100 cents or less (MA.1.4.9)	Number Games and Story Problems Investigation 2: Session 3
10. role-play making change up to a dime (MA.1.4.10)	Number Games and Story Problems Investigation 2: Session 3
11. select the appropriate tools of measurement to determine (MA.1.4.11) <ul style="list-style-type: none"> • length • weight • volume • temperature 	Bigger, Taller, Heavier, Smaller Investigation 1: Session 1-6 Investigation 2: Session 1-7 Investigation 3: Session 1-5
E. DATA ANALYSIS AND PROBABILITY	
1. identify and investigate various forms of data collection (MA.1.5.1)	Mathematical Thinking at Grade 1 Investigation 5: Session 1-6 Survey Questions and Secret Rules Investigation 2: Session 1-6 Investigation 3: Session 1-2 Investigation 4: Session 1-5
2. read and interpret a pictograph with each picture representing a single unit (MA.1.5.2)	Mathematical Thinking at Grade 1 Investigation 5: Session 3-6 Survey Questions and Secret Rules Investigation 2: Session 5-6 Investigation 3: Session 1-2 Investigation 4: Session 1-5
3. conduct simple experiments and use the data to predict which of the events is more likely to less likely to occur if the experiment is repeated (MA.1.5.3)	<i>Can be developed from</i> Survey Questions and Secret Rules Investigation 4: Session 2-5

West Virginia Specific Criteria	Investigations In Number, Data, and Space
4. discuss events related to student’s experiences as likely or unlikely (MA.1.5.4)	Survey Questions and Secret Rules Investigation 4: Session 4-5
5. a. tally by ones, organize the data in a chart/table, and construct a bar graph (MA.1.5.5)	Mathematical Thinking at Grade 1 Investigation 5: Session 3-6 Survey Questions and Secret Rules Investigation 2: Session 5-6 Investigation 3: Session 1-2 Investigation 4: Session 1-5
b. read and interpret tally charts and tables (MA.1.5.5)	Mathematical Thinking at Grade 1 Investigation 5: Session 3-6 Survey Questions and Secret Rules Investigation 2: Session 1-6 Investigation 3: Session 1-2 Investigation 4: Session 1-5
6. analyze data represented on a graph (MA.1.5.6)	Mathematical Thinking at Grade 1 Investigation 5: Session 3-6 Survey Questions and Secret Rules Investigation 2: Session 5-6 Investigation 3: Session 1-2 Investigation 4: Session 1-5

VENDOR: Pearson Scott Foresman

INSTRUCTIONAL

SUBJECT: Mathematics – Grade Two

MATERIALS: Teacher’s Curriculum Units

COPYRIGHT DATE(S): 2004

TE ISBN: Teacher’s Curriculum Units Pkg. - 0-201-37800-0

Mathematical Thinking – 0-201-43831-3

Coins, Coupons, and Combinations - 0-201-37815-9

Does It Walk, Crawl, or Swim? – 0-201-37816-7

Shapes, Halves, and Symmetry - 0-201-37817-5

Putting Together and Taking Apart - 0-201-37818-3

How Long? How Far? - 0-201-37819-1

How Many Pockets? How Many Teeth? – 0-201-37820-5

Time Lines and Rhythm Patterns – 0-201-37821-3

**West Virginia Mathematics
Specific Criteria for Content and Skills
Grade Two**

All materials at this grade level (1) be research based and theory driven; (2) incorporate basic, accurate information that is developmentally appropriate; (3) use interactive activities that actively engage students; (4) provide students with opportunities to model and practice relevant skills; (5) develop higher order thinking opportunities; and (6) be based on national standards. The instructional materials should provide students with opportunities to:

West Virginia Specific Criteria	Investigations In Number, Data, and Space
A. NUMBER AND OPERATIONS	
1. read, write, order and compare numbers to 1000 (MA.2.1.1)	Mathematical Thinking at Grade 2 Investigation 1: Session 1 Investigation 2: Sessions 1-3, 6, 8 Investigation 4: Session 1-4 Coins, Coupons and Combinations Investigation 1: Session 1-11 Investigation 2: Session 3 Investigation 4: Session 1-4 Putting Together and Taking Apart Investigation 2: Session 1-7
2. identify any number as odd or even (MA.2.1.2)	Coins, Coupons and Combinations Investigation 2: Session 1-10 Investigation 4: Session 1-4 Putting Together and Taking Apart Investigation 2: Session 1-4

West Virginia Specific Criteria	Investigations In Number, Data, and Space
<p>3. count and group concrete items by 1's, 10's and 100's to 1000 (MA.2.1.3)</p>	<p>Mathematical Thinking at Grade 2 Investigation 2: Sessions 6, 8 Investigation 4: Session 1-4 Coins, Coupons and Combinations Investigation 1: Sessions 1-3, 11 Investigation 2: Session 1-10 Investigation 4: Session 1-4 Putting Together and Taking Apart Investigation 2: Session 1-7 Investigation 4: Session 1-4 Investigation 5: Sessions 2-3, 6</p>
<p>4. model and identify place value of each digit utilizing standard and expanded form through 1000 (MA.2.1.4)</p>	<p>Mathematical Thinking at Grade 2 Investigation 2: Sessions 6, 8 Investigation 4: Session 1-4 Coins, Coupons and Combinations Investigation 1: Session 1-3 Investigation 2: Session 1-10 Investigation 4: Session 1-4 Putting Together and Taking Apart Investigation 2: Session 1-7 Investigation 4: Session 1-4 Investigation 5: Sessions 2-3, 6</p>
<p>5. identify and read any ordinal number (MA.2.1.5)</p>	<p>Mathematical Thinking at Grade 2 Investigation 4: Session 1-4 Coins, Coupons and Combinations Investigation 2: Sessions 3, 10 Investigation 4: Session 1-4 Putting Together and Taking Apart Investigation 2: Session 1 Timelines and Rhythm Patterns Investigation 1: Session 1-3</p>

West Virginia Specific Criteria	Investigations In Number, Data, and Space
<p>6. round to nearer 10 and 100 any three digit number (MA.2.1.6)</p>	<p><i>Can be developed from</i> Grade 2 Putting Together, Taking Apart Investigation 2: Session 3-4 Investigation 4: Session 1-2</p> <p><i>Can be developed from</i> Grade 3 Fair Shares Investigation 3: Session 1-2</p>
<p>7. a. identify and name fractions as a part of a whole using models (MA.2.1.7)</p>	<p>Shapes, Halves and Symmetry Investigation 3: Session 1-8</p>
<p>b. identify and name fractions as part of a group using models (MA.2.1.7)</p>	<p>Shapes, Halves and Symmetry Investigation 3: Session 1-8</p>
<p>8. understand the meaning of operations and the relationship between addition and subtraction (MA.2.1.8) a. identity element</p>	<p>Mathematical Thinking at Grade 2 Investigation 1: Session 1 Investigation 2: Sessions 1-3, 6, 8 Investigation 4: Session 1-4 Coins, Coupons and Combinations Investigation 1: Session 1-11 Investigation 3: Session 1-5 Putting Together and Taking Apart Investigation 1: Session 1-6 Investigation 2: Session 1-7 Investigation 3: Session 1-5 Investigation 4: Session 1-4 Investigation 5: Session 1-8</p>

West Virginia Specific Criteria	Investigations In Number, Data, and Space
b. associative property	Mathematical Thinking at Grade 2 Investigation 1: Session 1 Investigation 2: Sessions 1-3, 6, 8 Investigation 4: Session 1-4 Coins, Coupons and Combinations Investigation 1: Session 1-11 Investigation 3: Session 1-5 Putting Together and Taking Apart Investigation 1: Session 1-6 Investigation 2: Session 1-7 Investigation 3: Session 1-5 Investigation 4: Session 1-4 Investigation 5: Session 1-8
c) commutative property	Mathematical Thinking at Grade 2 Investigation 1: Session 1 Investigation 2: Sessions 1-3, 6, 8 Investigation 4: Session 1-4 Coins, Coupons and Combinations Investigation 1: Session 1-11 Investigation 3: Session 1-5 Putting Together and Taking Apart Investigation 1: Session 1-6 Investigation 2: Session 1-7 Investigation 3: Session 1-5 Investigation 4: Session 1-4 Investigation 5: Session 1-8
d) inverse operations	Coins, Coupons and Combinations Investigation 3: Session 4-5 Putting Together and Taking Apart Investigation 1: Session 1-4 Investigation 3: Session 2

West Virginia Specific Criteria	Investigations In Number, Data, and Space
<p>e) fact families</p>	<p>Mathematical Thinking at Grade 2 Investigation 1: Session 1 Investigation 2: Sessions 1-3, 6, 8 Investigation 4: Session 1-5 Investigation 5: Session 3 Coins, Coupons and Combinations Investigation 1: Session 1-11 Investigation 2: Session 10 Investigation 3: Session 1-5 Putting Together and Taking Apart Investigation 1: Session 1-6 Investigation 2: Session 1-7 Investigation 3: Session 1-5 Investigation 4: Session 1-4 Investigation 5: Session 1-8</p>
<p>9. a. memorize basic addition facts with sums to 18 (MA.2.1.9)</p>	<p>Mathematical Thinking at Grade 2 Investigation 1: Session 1 Investigation 2: Sessions 1-3, 6, 8 Investigation 4: Session 1-5 Investigation 5: Session 3 Coins, Coupons and Combinations Investigation 1: Session 1-11 Investigation 2: Session 10 Investigation 3: Session 1-5 Putting Together and Taking Apart Investigation 1: Session 1-6 Investigation 2: Session 1-7 Investigation 3: Session 1-5 Investigation 4: Session 1-4 Investigation 5: Session 1-8</p>

West Virginia Specific Criteria	Investigations In Number, Data, and Space
<p>b. memorize basic subtraction facts with differences to 18 (MA.2.1.9)</p>	<p>Mathematical Thinking at Grade 2 Investigation 1: Session 1 Investigation 2: Sessions 1-3, 6, 8 Investigation 4: Session 1-5 Investigation 5: Session 3 Coins, Coupons and Combinations Investigation 1: Session 1-11 Investigation 2: Session 10 Investigation 3: Session 1-5 Putting Together and Taking Apart Investigation 1: Session 1-6 Investigation 2: Session 1-7 Investigation 3: Session 1-5 Investigation 4: Session 1-4 Investigation 5: Session 1-8</p>
<p>10. a. model 2 and 3 digit addition with regrouping (MA.2.1.10)</p>	<p>Coins, Coupons and Combinations Investigation 2: Session 10 Investigation 3: Session 1-5 Investigation 4: Session 2-5 Putting Together and Taking Apart Investigation 1: Session 1-6 Investigation 2: Session 1-7 Investigation 3: Session 1-5 Investigation 4: Session 1-4 Investigation 5: Session 1-8</p>
<p>b. model 2 and 3 digit subtraction without regrouping (MA.2.1.10)</p>	<p>Coins, Coupons and Combinations Investigation 2: Session 10 Investigation 3: Session 1-5 Investigation 4: Session 2-5 Putting Together and Taking Apart Investigation 1: Session 1-6 Investigation 2: Session 1-7 Investigation 3: Session 1-5 Investigation 4: Session 1-4 Investigation 5: Session 1-8</p>

West Virginia Specific Criteria	Investigations In Number, Data, and Space
11. add and subtract 2 and 3 digit numbers without regrouping (MA.2.1.11)	Coins, Coupons and Combinations Investigation 2: Session 10 Investigation 3: Session 1-5 Investigation 4: Session 2-5 Putting Together and Taking Apart Investigation 1: Session 1-6 Investigation 2: Session 1-7 Investigation 3: Session 1-5 Investigation 4: Session 1-4 Investigation 5: Session 1-8
12. use rounding to determine the reasonableness of a sum or a difference (MA.2.1.12)	<i>Can be developed from</i> Grade 3 Landmarks in the Hundreds Investigation 3: Session 1-3
13. solve story problems that require one or two step solutions using multiple strategies (MA.2.1.13)	Coins, Coupons and Combinations Investigation 1: Session 10-11 Investigation 3: Session 4-5 Investigation 4: Session 5 Putting Together and Taking Apart Investigation 1: Session 3-6 Investigation 2: Session 7 Investigation 3: Session 2-5 Investigation 4: Session 3-4 Investigation 5: Session 1-8
B. ALGEBRA	
1. a. analyze, describe and extend a growing pattern (MA.2.2.1)	Mathematical Thinking at Grade 2 Investigation 3: Session 1-6 Timelines and Rhythm Patterns Investigation 2: Session 1-5
b. create a growing pattern (MA.2.2.1)	Mathematical Thinking at Grade 2 Investigation 3: Session 1-6 Timelines and Rhythm Patterns Investigation 2: Session 1-5

West Virginia Specific Criteria	Investigations In Number, Data, and Space
2. use input/output model with functions (MA.2.2.2)	Mathematical Thinking at Grade 2 Investigation 2: Session 6 Putting Together and Taking Apart Investigation 2: Session 2
3. model and identify patterns of counting by 3's and 4's (MA.2.2.3)	<i>Can be developed from</i> Mathematical Thinking at Grade 2 Investigation 4: Session 1 Coins, Coupons and Combinations Investigation 2: Sessions 1-5, 10 Putting Together and Taking Apart Investigation 2: Session 1-2
4. given the rule, complete the pattern (MA.2.2.4)	Mathematical Thinking at Grade 2 Investigation 3: Session 1-6 Timelines and Rhythm Patterns Investigation 2: Session 1-5
5. use models to demonstrate equivalency of two numerical expressions written as a number sentence (MA.2.2.5)	Coins, Coupons and Combinations Investigation 1: Session 1-11 Investigation 3: Session 1-5 Putting Together and Taking Apart Investigation 1: Session 1-6 Investigation 3: Session 1-5 Investigation 4: Session 1-4 Investigation 5: Session 1-8
C. GEOMETRY	
1. identify and describe according to the number of faces and edges (MA.2.3.1) <ul style="list-style-type: none"> • cube • rectangular solid • cylinder • cone • pyramid 	Mathematical Thinking at Grade 2 Investigation 3: Session 1-2 Shapes, Halves and Symmetry Investigation 1: Session 1-8

West Virginia Specific Criteria	Investigations In Number, Data, and Space
2. compare and contrast plane and solid geometric shapes (MA.2.3.2)	Shapes, Halves and Symmetry Investigation 1: Session 1-8 Investigation 2: Session 1-6 Investigation 3: Session 1-2
3. given a design, draw the mirror image (MA.2.3.3)	Shapes, Halves and Symmetry Investigation 4: Session 1-7
4. model line segments and angles (MA.2.3.4)	<i>Grade 3</i> Turtle Paths Investigation 1: Session 1 Investigation 2: Session 1-3
5. identify the congruent shape that has been rotated and/or reflected (MA.2.3.5)	Shapes, Halves and Symmetry Investigation 3: Session 3-5
6. plot locations with simple relationships on a coordinate plane (MA.2.3.6)	How Long? How Far? Investigation 2: Session 6-8
7. identify and draw similar shapes (MA.2.3.7)	Shapes, Halves and Symmetry Investigation 1: Session 2-5 Investigation 2: Session 3-5
D. MEASUREMENT	
1. use a ruler to draw and compare lengths, given lengths in centimeters and inches (MA.2.4.1)	How Long? How Far? <i>Can be developed from</i> Investigation 1: Session 1-8 Investigation 2: Session 4-5
2. estimate and determine the perimeter of a polygon (MA.2.4.2)	Shapes, Halves and Symmetry Investigation 1: Session 2-5 Investigation 2: Session 2-6
3. estimate and count the number of square units needed to cover a given area (MA.2.4.3)	Shapes, Halves and Symmetry Investigation 1: Session 2-5 Investigation 2: Session 2-6

West Virginia Specific Criteria	Investigations In Number, Data, and Space
4. understand conversions within a system of measurements (MA.2.4.4)	How Long? How Far? Investigation 1: Session 1-8
5. estimate and determine weight/mass of familiar objects in pounds and kilograms (MA.2.4.5)	This criterion can be introduced during the following investigation. Does It Walk, Crawl, or Swim? Investigation 2: Sessions 3-4 <i>See also:</i> <i>Grade 1</i> Bigger, Taller, Heavier, Smaller Investigation 1: Session 1-6
6. order events in relation to time (MA.2.4.6)	Timelines and Rhythm Patterns Investigation 1: Session 1-6
7. given a calendar, determine past and future days of the week and identify specific dates (MA.2.4.6)	<i>Can be developed from</i> Timelines and Rhythm Patterns Investigation 1: Session 1-6
8. read time to the quarter hour using an analog and digital clock (MA.2.4.8)	Each text has an Appendix – About Classroom Routines which includes a feature entitled Time and Time Again. This section describes time-related activities and schedules.
9. calculate elapsed time to the half hour (MA.2.4.9)	Each text has an Appendix – About Classroom Routines which includes a feature entitled Time and Time Again. This section describes time-related activities and schedules.
10. read, write, and count amounts of money to a dollar (MA.2.4.10)	Mathematical Thinking at Grade 2 Investigation 4: Session 2 Coins, Coupons and Combinations Investigation 2: Session 6-9 Putting Together and Taking Apart Investigation 2: Session 5-6 Investigation 4: Session 3-4

West Virginia Specific Criteria	Investigations In Number, Data, and Space
11. role-play making change to a dollar (MA.2.4.11)	Mathematical Thinking at Grade 2 Investigation 4: Session 2 Coins, Coupons and Combinations Investigation 2: Session 6-9 Putting Together and Taking Apart Investigation 2: Session 5-6 Investigation 4: Session 3-4
12. read Celsius and Fahrenheit thermometers (MA.2.4.12)	In an appendix at the end of each text in Grade 1 is Classroom Routines – Time and Change, consisting of activities in which students explore units of time, relationships among them, daily schedules and weather.
E. DATA ANALYSIS AND PROBABILITY	
1. create, read, and interpret a pictograph with each picture representing greater than or equal to a single unit (MA.2.5.1)	Mathematical Thinking at Grade 2 Investigation 5: Sessions 1-2, 6 Does It Walk, Crawl or Swim? Investigation 1: Session 1-2 Investigation 2: Session 3-4 Investigation 3: Session 2-3 Investigation 4: Session 1-3 How Many Pockets? How Many Teeth? Investigation 1: Session 1-5 Investigation 2: Session 1-6 Investigation 3: Session 1-5
2. conduct a simple experiment with more than two outcomes and use the data to predict which event is more, less, or equally likely to occur if the experiment is repeated (MA.2.5.2)	The concept of probability is introduced in Grade 3. Students in Grade 2 may predict future events based on collected data. Does It Walk, Crawl or swim? Investigation 2: Session 3-4 How Many Pockets? How Many Teeth? Investigation 2: Sessions 3, 6

West Virginia Specific Criteria	Investigations In Number, Data, and Space
<p>3. analyze data represented on a graph (MA.2.5.3)</p>	<p>Mathematical Thinking at Grade Investigation 5: Sessions 1-2, 6 Does It Walk, Crawl or Swim? Investigation 1: Session 1-2 Investigation 2: Session 3-4 Investigation 3: Session 2-3 Investigation 4: Session 1-3 How Many Pockets? How Many Teeth? Investigation 1: Session 1-5 Investigation 2: Sessions 1-6 Investigation 3: Session 1-5</p>
<p>4. formulate questions, collect data, organize, and display as a chart/graph (MA.2.5.4)</p>	<p>Mathematical Thinking at Grade 2 Investigation 2: Session 6 Investigation 5: Sessions 1-6 Coins, Coupons and Combinations Investigation 1: Session 11 Investigation 2: Session 10 Does It Walk, Crawl or Swim? Investigation 1: Session 1-6 Investigation 4: Session 1-3 How Many Pockets? How Many Teeth? Investigation 1: Session 1-3 Investigation 2: Sessions 1-2, 4-5 Investigation 3: Session 1</p>

VENDOR: Pearson Scott Foresman

INSTRUCTIONAL

SUBJECT: Mathematics – Grade Three

MATERIALS: Teacher’s Curriculum Units

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TE ISBN: Teacher’s Curriculum Units Pkg. - 0-201-37801-9

Mathematical Thinking – 0-201-43832-1

Things That Come in Groups - 0-201-37822-1

Flips, Turns, and Area – 0-201-37823-X

From Paces to Feet - 0-201-37824-8

Landmarks in the 100’s – 0-201-37825-6

Up and Down the Number Line – 0-201-37826-4

Combining and Comparing - 0-201-37827-2

Turtle Paths - 0-201-37828-0

Fair Shares – 0-201-37829-9

Exploring Solids and Boxes – 0-201-37830-2

**West Virginia Mathematics
Specific Criteria for Content and Skills
Grade Three**

All materials at this grade level (1) be research based and theory driven; (2) incorporate basic, accurate information that is developmentally appropriate; (3) use interactive activities that actively engage students; (4) provide students with opportunities to model and practice relevant skills; (5) develop higher order thinking opportunities; and (6) be based on national standards. The instructional materials should provide students with opportunities to:

West Virginia Specific Criteria	Investigations In Number, Data, and Space
A. NUMBER AND OPERATIONS	
1. read, write, order and compare numbers to 10,000 (MA.3.1.1)	Mathematical Thinking at Grade 3 Investigation 1: Session 1-3 Investigation 3: Session 3-4 Things That Come in Groups Investigation 2: Session 1-6 Landmarks in the Hundreds Investigation 1: Session 1-3 Investigation 3: Session 1-3
2. read, write, order, and compare decimals to hundredths with models (MA.3.1.2)	Mathematical Thinking at Grade 3 Investigation 4: Session 2 Fair Shares Investigation 3: Session 1-3
3. identify place value of each digit utilizing standard and expanded form to 10,000 (MA.3.1.3)	Mathematical Thinking at Grade 3 Investigation 1: Session 1-3 Investigation 3: Session 3-4 Things That Come in Groups Investigation 2: Session 1-6 Landmarks in the Hundreds Investigation 1: Session 1-3 Investigation 3: Session 1-3

West Virginia Specific Criteria	Investigations In Number, Data, and Space
4. estimate to nearer 10,000 and 1,000 using rounding, benchmarks, and compatible numbers (MA.3.1.4)	<i>Can be developed from</i> Landmarks in the Hundreds Investigation 3: Session 1-3
5. use models and pictorial representations to identify fractions as part of (MA.3.1.5) <ul style="list-style-type: none"> • a whole/one • a group 	Fair Shares Investigation 1: Session 1-4 Investigation 2: Session 1-7
6. compare and order fractions with like and unlike denominators using concrete models (MA.3.1.6)	Fair Shares Investigation 1: Session 1-4 Investigation 2: Session 1-7
7. use concrete models and pictorial representations to add and subtract fractions with like denominators (MA.3.1.7)	Fair Shares Investigation 1: Session 1-4 Investigation 2: Session 1-7
8. recognize and model equivalent fractions using concrete materials (MA.3.1.8)	Fair Shares Investigation 1: Session 1-4 Investigation 2: Session 1-7
9. recognize and model proper and improper fractions and mixed numbers (MA.3.1.9)	Fair Shares Investigation 1: Session 3-4 Investigation 2: Session 3-7
10. add and subtract 2- and 3-digit whole numbers and money without and with regrouping (MA.3.1.10)	Mathematical Thinking at Grade 3 Investigation 2: Session 2-7 Investigation 3: Session 3-4 Combining and Comparing Investigation 1: Session 1-2 Investigation 3: Session 1-3 Investigation 4: Session 1-4

West Virginia Specific Criteria	Investigations In Number, Data, and Space
<p>11. use multiplication as repeated addition and division as repeated subtraction (MA.3.1.11)</p>	<p>Things That Come in Groups Investigation 1: Session 1-4 Investigation 2: Session 1-6 Investigation 3: Session 1-5 Investigation 4: Session 1-4 Landmarks in the Hundreds Investigation 1: Session 1-7 Investigation 2: Session 1-6</p>
<p>12. identify the meanings of operations and the relationship between multiplication and division (MA.3.1.12)</p> <ul style="list-style-type: none"> • identity element of multiplication • commutative property • property of zero • fact families • associative property 	<p>Things That Come in Groups Investigation 1: Session 1-4 Investigation 2: Session 1-6 Investigation 3: Session 1-5 Investigation 4: Session 1-4 Investigation 5: Session 1-4 Landmarks in the Hundreds Investigation 1: Session 1-7 Investigation 2: Session 1-6</p>
<p>13. model multiplication of 2- and 3-digit numbers by a 1-digit number (MA.3.1.14)</p>	<p>Things That Come in Groups Investigation 5: Session 1,2</p> <p><i>See also:</i> <i>Grade 4</i> Arrays and Shares Investigation 2: Session 2-3 Investigation 3: Session 1-5 Packages and Groups Investigation 2: Session 1 Investigation 3: Session 4-6</p>

West Virginia Specific Criteria	Investigations In Number, Data, and Space
<p>14. model division of 2- and 3-digit numbers by a 1-digit number (MA.3.1.15)</p>	<p>Things That Come in Groups Investigation 5: Session 4</p> <p><i>See also:</i> <i>Grade 4</i> Arrays and Shares Investigation 2: Session 7-8 Investigation 3: Session 2-4 Packages and Groups Investigation 3: Session 1-10</p>
<p>15. solve story problems using multiple strategies. (MA.3.1.16)</p>	<p>Things That Come in Groups Investigation 4: Session 1-4 Landmarks in the Hundreds Investigation 2: Session 4-6</p>
<p>B. ALGEBRA</p>	
<p>1. analyze and complete geometric patterns (multiplication progression) (MA.3.2.1)</p>	<p>Mathematical Thinking at Grade 3 Investigation 1: Session 2-3 Things That Come in Groups Investigation 2: Session 1-6 Investigation 3: Session 3-4 Investigation 5: Session 1 Flips, Turns and Area Investigation 1: Session 1-3 Landmarks in the Hundreds Investigation 1: Session 4-5 Fair Shares Investigation 2: Session 5-6</p>
<p>2. use input/output model (MA.3.2.2)</p>	<p>Things That Come in Groups Investigation 5: Session 1-4 Fair Shares Investigation 2: Session 5-6</p>

West Virginia Specific Criteria	Investigations In Number, Data, and Space
3. identify and write the rule of a given pattern (MA.3.2.4)	Mathematical Thinking at Grade 3 Investigation 1: Session 2-3 Things That Come in Groups Investigation 2: Session 1-6 Investigation 3: Session 3-4 Investigation 5: Session 1 Flips, Turns and Area Investigation 1: Session 1-3 Landmarks in the Hundreds Investigation 1: Session 4-5 Fair Shares Investigation 2: Session 5-6
4. write equivalent numerical expressions (MA.3.2.5)	Mathematical Thinking at Grade 3 Investigation 2: Session 1-2 Things That Come in Groups Investigation 4: Session 1-4 Investigation 5: Session 2
5. use a symbol to represent the idea of a variable as an unknown quantity (MA.3.2.6)	Things That Come in Groups Investigation 1: Session 3 Investigation 4: Session 1-4 Up and Down the Number Line Investigation 1: Session 6-7
C. GEOMETRY	
1. identify basic polygons and their components through decagon (MA.3.3.1) <ul style="list-style-type: none"> • octagon • parallelogram • rhombus 	Flips, Turns and Area Investigation 2: Session 1-3 Exploring Solids and Boxes Investigation 2: Session 1-2
2. identify and describe a cube, rectangular solid, cylinder, cone, and pyramid according to the number of faces, edges and vertices (MA.3.3.2)	Exploring Solids and Boxes Investigation 1: Session 1-2 Investigation 2: Session 3-5 Investigation 3: Session 1-2

West Virginia Specific Criteria	Investigations In Number, Data, and Space
3. given a plane drawing, construct, and identify the solid figure (MA.3.3.3)	Exploring Solids and Boxes Investigation 2: Session 3-5 Investigation 3: Session 1-2 Investigation 5: Session 1-4
4. identify, determine, and draw lines of symmetry (MA.3.3.4)	Mathematical Thinking at Grade 3 Investigation 2: Session 1
5. model and describe lines and rays (MA.3.3.5)	Mathematical Thinking at Grade 3 Investigation 2: Session 1 Turtle Paths Investigation 1: Session 1 Investigation 2: Session 1-3
6. identify and draw right, obtuse, and acute angles (MA.3.3.6)	Turtle Paths Investigation 1: Session 1 Investigation 2: Session 1-4
7. given a model, draw an example of a flip, slide, and turn [reflection (flip), translation, (slide) and rotation (turn)] (MA.3.3.7)	Flips, Turns and Area Investigation 1: Session 2-3
8. name the location of a point on a one-quadrant grid (MA.3.3.8)	Turtle Paths Investigation 1: Sessions 3-4 <i>See also:</i> <i>Grade 4</i> Sunken Ships and Grid Patterns Investigation 1: Session 1-4

West Virginia Specific Criteria	Investigations In Number, Data, and Space
D. MEASUREMENT	
1. estimate, measure, compare, order, and draw lengths using inches (to the nearest $\frac{1}{2}$ inch), feet, yards, centimeters, and meters (MA.3.4.1)	From Paces to Feet Investigation 1: Session 1-6 Investigation 2: Session 1-7 Investigation 3: Session 1-3 Investigation 4: Session 1-3 Combining and Comparing Investigation 3: Session 1-2 Turtle Paths Investigation 2: Session 5-6
2. estimate and count the number of cubes in a rectangular solid to determine volume (MA.3.4.2)	Exploring Solids and Boxes Investigation 4: Session 1-3 Investigation 5: Session 1-4
3. use modeling to discover the formula for determining the area of rectangle (MA.3.4.3)	Flips, Turns and Area Investigation 2: Session 1-5
4. use conversions within a system of measure (MA.3.4.4)	From Paces to Feet Investigation 2: Session 1-7 Investigation 4: Session 1-3 Combining and Comparing Investigation 2: Session 1-2 Investigation 3: Session 1-2
5. estimate and measure results of mass/weight in ounces, pounds, grams, and kilograms (MA.3.4.5)	Combining and Comparing Investigation 2: Session 1-2
6. read time to five-minute intervals using analog and digital clocks (MA.3.4.6)	Combining and Comparing Investigation 3: Session 3 Investigation 5: Session 1-3
7. calculate elapsed time to quarter-hour (MA.3.4.7)	Combining and Comparing Investigation 3: Session 3 Investigation 5: Session 1-3

West Virginia Specific Criteria	Investigations In Number, Data, and Space
<p>8. read and write amounts of money to \$100.00 (MA.3.4.8)</p>	<p>Mathematical Thinking at Grade 3 Investigation 2: Session 5-7 Things That Come in Groups Investigation 5: Session 1 Landmarks in the Hundreds Investigation 1: Session 6-7 Investigation 2: Session 4</p>
<p>9. model making change up to \$10.00 (MA.3.4.9)</p>	<p>Mathematical Thinking at Grade 3 Investigation 2: Session 5-7 Things That Come in Groups Investigation 5: Session 1 Landmarks in the Hundreds Investigation 1: Session 6-7 Investigation 2: Session 4</p>
<p>10. estimate, read, and recognize common temperatures of Celsius and Fahrenheit (MA.3.4.10)</p> <ul style="list-style-type: none"> • room • freezing • boiling 	<p><i>Can be developed from</i> Up and Down the Number Line Investigation 1: Sessions 1-2, 8</p>
<p>E. DATA ANALYSIS AND PROBABILITY</p>	
<p>1. a. collect data from observations, surveys, and experiments (MA.3.5.1)</p>	<p>Mathematical Thinking at Grade 3 Investigation 3: Session 1-2 Things That Come in Groups Investigation 5: Session 3 From Paces to Feet Investigation 2: Session 2 Investigation 3: Session 1-3 Up and Down the Number Line Investigation 1: Sessions 1-2, 8 Combining and Comparing Investigation 1: Session 3 Investigation 4: Session 1</p>

West Virginia Specific Criteria	Investigations In Number, Data, and Space
b. construct and label a graph (MA.3.5.1)	Mathematical Thinking at Grade 3 Investigation 3: Session 1-2 Things That Come in Groups Investigation 5: Session 3
2. experiment and describe concepts of probability and chance and list possible outcomes (MA.3.5.3)	Things That Come in Groups Ten-Minute Math: Likely or Unlikely? Exploring Solids and Boxes Ten-Minute Math: What is Likely?
3. analyze data represented on a graph using grade level appropriate questions (MA.3.5.4)	Mathematical Thinking at Grade 3 Investigation 3: Session 1-2 Things That Come in Groups Investigation 5: Session 3

VENDOR: Pearson Scott Foresman

INSTRUCTIONAL

SUBJECT: Mathematics – Grade Four

MATERIALS: Teacher’s Curriculum Units

COPYRIGHT DATE(S): 2004

TE ISBN: Teacher’s Curriculum Units Pkg. - 0-201-37802-7

Mathematical Thinking – 0-201-43833-X

Arrays and Shares - 0-201-37831-0

Seeing Solids and Silhouettes – 0-201-37832-9

Landmarks in the Thousands – 0-201-43416-4

Different Shapes, Equal Pieces – 0-201-43417-2

The Shape of the Data – 0-201-43418-0

Money, Miles, and Large Numbers - 0-201-43419-9

Changes Over Time - 0-201-43420-2

Packages and Groups – 0-201-43421-0

Sunken Ships and Grid Patterns – 0-201-43422-9

Three Out of Four Like Spaghetti – 0-201-43423-7

**West Virginia Mathematics
Specific Criteria for Content and Skills
Grade Four**

All materials at this grade level (1) be research based and theory driven; (2) incorporate basic, accurate information that is developmentally appropriate; (3) use interactive activities that actively engage students; (4) provide students with opportunities to model and practice relevant skills; (5) develop higher order thinking opportunities; and (6) be based on national standards. The instructional materials should provide students with opportunities to:

West Virginia Specific Criteria	Investigations In Number, Data, and Space
A. NUMBER AND OPERATIONS	
1. read, write, order, and compare numbers to the millions place (MA.4.1.1)	Mathematical Thinking at Grade 4 Investigation 1: Session 1-3 Investigation 3: Session 1-2 Arrays and Shares Investigation 1: Session 1-2 Landmarks in the Thousands Investigation 1: Session 1-3 Investigation 3: Session 1 Investigation 4: Session 1-3
2. use pictorial representation to read, write, order, and compare decimals to thousandths with and without models (MA.4.1.2)	Money, Miles and Large Numbers Investigation 1: Session 4-5 Investigation 2: Session 1-4

West Virginia Specific Criteria	Investigations In Number, Data, and Space
<p>3. identify place value of each digit utilizing standard and expanded form through 1,000,000 (MA.4.1.3)</p>	<p>Mathematical Thinking at Grade 4 Investigation 1: Session 1-3 Investigation 3: Session 1-2 Arrays and Shares Investigation 1: Session 1-2 Landmarks in the Thousands Investigation 1: Session 1-3 Investigation 3: Session 1 Investigation 4: Session 1-3</p>
<p>4. estimate to nearer 10,000 using rounding, benchmarks, and compatible numbers and identify over and under estimates (MA.4.1.4)</p>	<p>Mathematical Thinking at Grade 4 Investigation 1: Session 2-3 Ten-Minute Math: Estimation and Number Sense Landmarks in the Thousands Investigation 3: Session 3-5 The Shape of the Data Ten-Minute Math: Estimation and Number Sense Money, Miles and Large Numbers Investigation 1: Sessions 1-2, 7-8 Investigation 2: Session 1-2 Investigation 3: Session 1 Packages and Groups Investigation 2: Session 2-3</p>
<p>5. use pictorial representations to</p> <ul style="list-style-type: none"> • compare and order fractions with like and unlike denominators (MA.4.1.5) • add and subtract fractions with like and unlike denominators (MA.4.1.6) • recognize and model equivalent fractions (MA.4.1.7) 	<p>Different Shapes, Equal Pieces Investigation 1: Session 1-5 Investigation 1: Session 1-4 Investigation 1: Session 1-5 Money, Miles and Large Numbers Investigation 2: Session 1-3 Three Out of Four Like Spaghetti Investigation 1: Session 1-4</p>

West Virginia Specific Criteria	Investigations In Number, Data, and Space
6. model addition and subtraction of mixed numbers without and with regrouping (MA.4.1.8)	<i>Can be developed from</i> Different Shapes, Equal Pieces Investigation 3: Session 1-5
7. model the relationship of fractions to decimals using concrete objects and pictorial representations (MA.4.1.9)	Money, Miles and Large Numbers Investigation 2: Session 1-3
8. round decimals to the nearest whole, tenth, or hundredth (MA.4.1.10)	Money, Miles and Large Numbers Investigation 2: Session 1-4
9. add and subtract decimals to the thousandth place (MA.4.1.11)	Money, Miles and Large Numbers Investigation 1: Session 4-8 Investigation 2: Session 4
10. apply the distributive property of multiplication over addition (MA.4.1.12)	Arrays and Shares Investigation 2: Session 1-6 Landmarks in the Thousands Investigation 2: Session 1 Packages and Groups Investigation 1: Session 1-5
11. memorize basic multiplication facts and corresponding division facts (MA.4.1.13)	Arrays and Shares Investigation 1: Session 1-3 Investigation 2: Session 1-8 Landmarks in the Thousands Investigation 1: Session 1-2 Investigation 2: Session 1 Packages and Groups Investigation 1: Session 1-5 Investigation 3: Session 1-9

West Virginia Specific Criteria	Investigations In Number, Data, and Space
12. multiply 2- and 3-digit numbers by 1- and 2-digit number (MA.4.1.14)	Arrays and Shares Investigation 1: Session 1-3 Investigation 2: Session 5-6 Investigation 3: Session 1-8 Packages and Groups Investigation 2: Session 1-3 Investigation 3: Session 4-6
13. divide 2- and 3-digit numbers by 1- and 2-digit numbers (MA.4.1.15)	Arrays and Shares Investigation 1: Session 3 Investigation 2: Session 5-8 Investigation 3: Session 2-4 Packages and Groups Investigation 3: Session 1-10
14. apply the order of operations in solving problems (MA.4.1.16)	<i>Can be developed from</i> Arrays and Shares Investigation 3: Session 1-5 Packages and Groups Investigation 2: Session 2-3
15. solve grade level appropriate story problems using multiple strategies (MA.4.1.17)	Arrays and Shares Investigation 3: Session 5 Packages and Groups Investigation 3: Session 3-5 The Shape of the Data Investigation 2: Session 4 Investigation 3: Session 1-2 Money, Miles and Large Numbers Investigation 1: Session 7-8 Investigation 2: Session 4 Packages and Groups Investigation 3: Session 1-10

West Virginia Specific Criteria	Investigations In Number, Data, and Space
16. develop fluency in addition and subtraction of all whole numbers (MA.4.1.18)	Mathematical Thinking at Grade 4 Investigation 3: Session 3-5 Landmarks in the Thousands Investigation 2: Session 2-4 Investigation 3: Session 3-5 Money, Miles and Large Numbers Investigation 1: Session 4-5 Investigation 3: Session 1
B. ALGEBRA	
1. solve problems involving patterns (MA.4.2.1)	Mathematical Thinking at Grade 4 Investigation 4: Session 1-6 Arrays and Shares Investigation 1: Session 1-3 Investigation 2: Session 1-6 Investigation 3: Session 1 Landmarks in the Thousands Investigation 1: Session 1-2 Investigation 2: Session 1 Packages and Groups Investigation 1: Session 1-3 Investigation 3: Session 4-6
2. use input/output model (MA.4.2.2)	Arrays and Shares Investigation 2: Session 1-4 Ten-Minute Math: Multiple BINGO Landmarks in the Thousands Investigation 2: Session 1 Packages and Groups Investigation 2: Session 1

West Virginia Specific Criteria	Investigations In Number, Data, and Space
<p>3. make connections between number patterns and multiples (MA.4.2.3)</p>	<p>Mathematical Thinking at Grade 4 Investigation 3: Session 1 Arrays and Shares Investigation 1: Session 1-3 Investigation 2: Session 1-6 Investigation 3: Session 1 Landmarks in the Thousands Investigation 1: Session 1 Investigation 2: Session 1 Investigation 3: Session 2 Investigation 4: Session 1-3 Packages and Groups Investigation 1: Session 1-5 Investigation 3: Session 9</p>
<p>4. use patterns to predict the nth term (MA.4.2.4)</p>	<p>Mathematical Thinking at Grade 4 Investigation 3: Session 1 Arrays and Shares Investigation 1: Session 1-3 Investigation 2: Session 1-6 Investigation 3: Session 1 Landmarks in the Thousands Investigation 1: Session 1 Investigation 2: Session 1 Investigation 3: Session 2 Investigation 4: Session 1-3 Packages and Groups Investigation 1: Session 1-5 Investigation 3: Session 9</p>
<p>5. use a letter to represent the idea of a variable as an unknown quantity (MA.4.2.5)</p>	<p>Arrays and Shares Investigation 2: Session 2-3 Landmarks in the Thousands Investigation 2: Session 2-4 Changes Over Time Investigation 1: Session 5-6</p>

West Virginia Specific Criteria	Investigations In Number, Data, and Space
C. GEOMETRY	
1. identify plane figures and their components (MA.4.3.1)	Sunken Ships and Grid Patterns Investigation 2: Session 1-7
2. compare and contrast quadrilateral shapes (MA.4.3.2)	Different Shapes, Equal Pieces Investigation 1: Session 2-4 Sunken Ships and Grid Patterns Investigation 2: Session 1-9
3. describe three-dimensional objects from different perspectives (MA.4.3.3)	Seeing Solids and Silhouettes Investigation 1: Session 1-2 Investigation 2: Session 1-5 Investigation 3: Session 1-3 Investigation 4: Session 1-4 Ten-Minute Math: Quick Images
4. identify and draw intersecting, parallel, and perpendicular lines (MA.4.3.4)	Sunken Ships and Grid Patterns Investigation 2: Session 1-7
5. draw, label, compare, and classify acute, right, and obtuse angles (MA.4.3.5)	Sunken Ships and Grid Patterns Investigation 1: Session 3-4 Investigation 2: Session 1-9
6. draw a design with one line of symmetry (MA.4.3.6)	Mathematical Thinking at Grade 4 Investigation 4: Session 1-6 Sunken Ships and Grid Patterns Investigation 2: Session 2-3
7. graph/plot ordered pairs on a one-quadrant grid (MA.4.3.7)	Sunken Ships and Grid Patterns Investigation 1: Session 1-6 Investigation 2: Session 4-9
8. draw and identify parts of a circle: center point, diameter, and radius (MA.4.3.8)	Students investigate circles as silhouettes of spheres, cylinders, and cones. Seeing Solids and Silhouettes Investigation 2: Session 1-2

West Virginia Specific Criteria	Investigations In Number, Data, and Space
D. MEASUREMENT	
1. estimate, measure, compare, order, and draw lengths (to the nearest ¼ inch) using customary and metric units (MA.4.4.1)	The Shape of Data Investigation 2: Session 1-3 Money, Miles, and Large Numbers Investigation 2: Session 1-3 Changes Over Time Unit Preparation: Session 3 Sunken Ships and Grid Patterns Investigation 1: Session 1-6
2. determine and compare areas of rectangles and squares by multiplying length and width (MA.4.4.2)	Different Shapes, Equal Pieces Investigation 1: Session 1-4 Investigation 2: Session 1-2
3. model the formula for volume of a rectangular prism (MA.4.4.3)	<i>Can be developed from</i> Seeing Solids and Silhouettes Investigation 1: Session 1 <i>See also:</i> <i>Grade 3</i> Exploring Solids and Boxes Investigation 4: Session 1-3 Investigation 5: Session 1-4
4. use conversions within a system of measure (MA.4.4.4)	The Shape of the Data Investigation 2: Session 4 Money, Miles and Large Numbers Investigation 2: Session 3-4 Investigation 3: Session 2-4

West Virginia Specific Criteria	Investigations In Number, Data, and Space
<p>5. read scales of weight, capacity, and temperature and select appropriate unit (MA.4.4.5)</p>	<p>Related content: Changes Over Time Unit Preparation Session 3</p> <p><i>See also:</i> Grade 5 Measurement Benchmarks Investigation 2: Session 1-6</p>
<p>6. read time to the minute (MA.4.4.6)</p>	<p><i>Can be developed from</i> Changes Over Time Investigation 1: Sessions 1-2</p> <p><i>See also:</i> Grade 5 Measurement Benchmarks Investigation 3: Session 1-3</p>
<p>7. determine elapsed time in hours/minutes within a 24-hour period (MA.4.4.7)</p>	<p><i>Can be developed from</i> The Shape of the Data Investigation 3: Sessions 1-2</p> <p><i>See also:</i> Grade 5 Measurement Benchmarks Investigation 3: Session 1-3</p>
<p>8. count coins and bills and determine correct change (MA.4.4.8)</p>	<p>Money, Miles and Large Numbers Investigation 1: Session 1-8</p>

West Virginia Specific Criteria	Investigations In Number, Data, and Space
E. DATA ANALYSIS AND PROBABILITY	
1. examine the use and misuse of statistics in our society (MA.4.5.1)	Mathematical Thinking at Grade 4 Ten-Minute Math: Exploring Data The Shape of the Data Investigation 1: Session 1-3 Investigation 2: Session 1-7 Investigation 3: Session 1-5 Changes Over Time Investigation 1: Session 1-4 Investigation 3: Session 1-8 Three Out of Four Like Spaghetti Investigation 2: Session 1-7
2. read and interpret information represented on a circle graph (MA.4.5.2)	Related content: Different Shapes, Equal Pieces Investigation 1: Session 5 <i>See also:</i> <i>Grade 5</i> Name That Portion Investigation 4: Session 1-7
3. collect, organize, display, read, and interpret data from a problem solving situation (MA.4.5.3)	The Shape of the Data Investigation 1: Session 1-3 Investigation 2: Session 1-7 Investigation 3: Session 1-5 Changes Over Time Investigation 1: Session 1-4 Investigation 3: Session 1-8 Three Out of Four Like Spaghetti Investigation 2: Session 1-7

West Virginia Specific Criteria	Investigations In Number, Data, and Space
<p>4. formulate line graphs, bar graphs, tally charts, and tables with scale increments greater than one (MA.4.5.3)</p>	<p>Mathematical Thinking at Grade 4 Ten-Minute Math: Exploring Data The Shape of the Data Investigation 1: Session 1-3 Investigation 2: Session 1-7 Investigation 3: Session 1-5 Changes Over Time Investigation 1: Session 1-4 Investigation 3: Session 1-8 Three Out of Four Like Spaghetti Investigation 2: Session 1-7</p>
<p>5. list all possible outcomes for an experiment using a tree diagram (MA.4.5.4)</p>	<p>Students list possible outcomes in a table or list and on pictorial poster display. Landmarks in the Thousands Ten-Minute Math: What is Likely? Money, Miles and Large Numbers Ten-Minute Math: Likely or Unlikely? Three Out of Four Like Spaghetti Ten-Minute Math: What is Likely?</p>
<p>6. determine mean, median, mode, and range from collected data (MA.4.5.5)</p>	<p>The Shape of the Data Investigation 2: Session 4-7</p>

VENDOR: Pearson Scott Foresman

INSTRUCTIONAL

SUBJECT: Mathematics – Grade Five

MATERIALS: Teacher’s Curriculum Units

COPYRIGHT DATE(S): 2004

TE ISBN: Teacher’s Curriculum Units Pkg. - 0-201-37803-5

Mathematical Thinking – 0-201-43834-8

Picturing Polygons - 0-201-43424-5

Name That Portion – 0-201-43425-3

Between Never and Always - 0-201-43426-1

Building on Numbers You Know – 0-201-43427-X

Measurement Benchmarks – 0-201-43428-8

Patterns of Change – 0-201-43429-6

Containers and Cubes - 0-201-43434-2

Data: Kids, Cats, and Ads – 0-201-43435-0

**West Virginia Mathematics
Specific Criteria for Content and Skills
Grade Five**

Il materials at this grade level (1) be research based and theory driven; (2) incorporate basic, accurate information that is developmentally appropriate; (3) use interactive activities that actively engage students; (4) provide students with opportunities to model and practice relevant skills; (5) develop higher order thinking opportunities; and (6) be based on national standards. The instructional materials should provide students with opportunities to:

West Virginia Specific Criteria	Investigations In Number, Data, and Space
A. NUMBER AND OPERATIONS	
1. read, write, order, and compare all whole numbers (MA.5.1.1)	Mathematical Thinking at Grade 5 Investigation 2: Session 1-5 Investigation 3: Session 1-3 Building on Numbers You Know Investigation 4: Session 1-2
2. read, write, order, and compare all decimals (MA.5.1.2)	Name That Portion Investigation 1: Session 1 Investigation 3: Session 1-8
3. identify place value of each digit utilizing standard and expanded form in any whole number (MA.5.1.3)	Mathematical Thinking at Grade 5 Investigation 2: Session 1-5 Investigation 3: Session 1-5 Investigation 4: Session 1-4 Building on Number Sense Investigation 4: Session 1-2

West Virginia Specific Criteria	Investigations In Number, Data, and Space
<p>4. estimate with whole numbers and decimals, including money (MA.5.1.4)</p>	<p>Between Never and Always Ten-Minute Math: Nearest Answer Building on Numbers You Know Investigation 1: Session 2 Investigation 3: Session 1-9 Investigation 5: Session 1-2 Measurement Benchmarks Ten-Minute Math: Estimation and Number Sense Patterns of Change Ten-Minute Math: Nearest Answer Data: Kids, Cats and Ads Investigation 3: Session 1 Investigation 4: Session 1</p>
<p>5. identify and use the divisibility rules of 2, 3, 5, 9, and 10 (MA.5.1.5)</p>	<p>Mathematical Thinking at Grade 5 Investigation 1: Session 1-6 Investigation 2: Session 2-5 Investigation 4: Session 2-4</p>
<p>6. compare and order fractions, improper fractions, and mixed numbers with like and unlike denominators (e.g., greatest common factor, lowest common multiple) (MA.5.1.6)</p>	<p>Name That Portion Investigation 1: Session 3-7 Investigation 2: Session 3-9</p>
<p>7. model and write equivalencies of fractions, decimals, percents, and ratios (MA.5.1.7)</p>	<p>Name That Portion Investigation 1: Session 1-7 Investigation 3: Sessions 1, 5-8 Data: Kids, Cats and Ads Investigation 3: Session 1</p>
<p>8. add and subtract fractions and mixed numbers (MA.5.1.8)</p>	<p>Name That Portion Investigation 2: Session 6-9</p>

West Virginia Specific Criteria	Investigations In Number, Data, and Space
9. model multiplication and division of fractions to solve the algorithm (MA.5.1.9)	<i>Can be developed from</i> Name That Portion Investigation 2: Session 3-9
10. model multiplication of decimals and division of decimals by a whole number divisor (MA.5.1.10)	<i>Can be developed from</i> Name That Portion Investigation 3: Session 2-7
11. develop fluency in addition, subtraction, multiplication, and division of whole numbers (MA.5.1.11)	Building on Numbers You Know Investigation 1: Sessions 3-4, 6-8 Investigation 2: Session 1-7 Investigation 3: Session 1-10 Investigation 5: Session 3-7
12. solve story problems using multiple strategies (MA.5.1.12)	Mathematical Thinking at Grade 5 Investigation 1: Session 4-6 Name That Portion Investigation 2: Session 9 Investigation 3: Session 7 Building on Numbers You Know Investigation 2: Session 7 Investigation 3: Session 7-9 Investigation 5: Sessions 3, 7
B. ALGEBRA	
1. explore a variety of patterns with missing elements (e.g., square numbers, powers, triangular numbers, arithmetic sequences) (MA.5.2.1)	Mathematical Thinking at Grade 5 Investigation 2: Session 1 Investigation 3: Session 1 Investigation 4: Session 5-6 Picturing Polygons Investigation 3: Session 1-3 Building on Numbers You Know Investigation 1: Session 1-5 Investigation 4: Session 2

West Virginia Specific Criteria	Investigations In Number, Data, and Space
(continued)	Patterns of Change Investigation 1: Session 1-4 Investigation 2: Session 1-5 Investigation 3: Session 1-7 Containers and Cubes Ten-Minute Math: Counting Around the Class
2. use input/output model (MA.5.2.2)	Picturing Polygons Investigation 2: Session 4-7 Investigation 3: Sessions 1-2, 5-6 Name That Portion Investigation 3: Session 1 Patterns of Change Investigation 1: Session 1-4 Investigation 2: Session 1-5 Investigation 3: Session 1-6
3. write an equation using a variable to solve problems (MA.5.2.3)	Measurement Benchmarks Investigation 3: Session 3 Building on Numbers You Know Investigation 2: Session 5-7 Investigation 3: Session 10 Investigation 5: Session 1-7
4. evaluate an expression given a value for the variable (MA.5.2.4)	Measurement Benchmarks Investigation 3: Session 3 Building on Numbers You Know Investigation 2: Session 5-7 Investigation 3: Session 10 Investigation 5: Session 1-7
C. GEOMETRY	
1. classify and compare polygons (MA.5.3.1)	Picturing Polygons Investigation 1: Session 1-4 Investigation 2: Session 1-9 Investigation 3: Session 1-6

West Virginia Specific Criteria	Investigations In Number, Data, and Space
2. construct a 3-dimensional figure from different views (orthogonal drawings) (MA.5.3.2)	Containers and Cubes Investigation 4: Sessions 1-3, 6-9
3. measure angles using a protractor (MA.5.3.3)	Picturing Polygons Investigation 2: Session 6-9
4. draw a design with more than one line of symmetry (MA.5.3.4)	Picturing Polygons Investigation 2: Session 4-8 Investigation 3: Session 4-6
5. identify the images of figures after reflections, translations and rotations (MA.5.3.5)	Picturing Polygons Investigation 2: Session 4-8 Investigation 3: Session 4-6
6. draw a similar figure using a scale (MA.5.3.6)	<i>Can be developed from</i> Picturing Polygons Investigation 3: Session 4-6
D. MEASUREMENT	
1. estimate, measure, compare, order, and draw lengths of real objects in parts of an inch up to 1/8 of an inch and millimeters (MA.5.4.1)	Measurement Benchmarks Investigation 1: Session 1-6
2. use appropriate formulas to determine and compare area of triangles and parallelograms (MA.5.4.2)	Picturing Polygons Investigation 3: Session 4-6
3. use a formula to determine the volume of a rectangular prism (MA.5.4.3)	Measurement Benchmarks Investigation 2: Session 4 Containers and Cubes Investigation 1: Session 1-4 Investigation 2: Session 1-5 Investigation 3: Session 1-4

West Virginia Specific Criteria	Investigations In Number, Data, and Space
4. identify the relationship between the area and perimeter of a plane figure (MA.5.4.4)	Picturing Polygons Investigation 3: Session 4-6
5. use conversions within a system of measure and apply to problem solving situations (MA.5.4.5)	Measurement Benchmarks Investigation 1: Session 1-6 Investigation 2: Session 1-6
6. evaluate and/or measure the weight/mass of real objects in ounces, pounds, tons, grams, and kilograms (MA.5.4.6)	Measurement Benchmarks Investigation 1: Session 1 Investigation 2: Sessions 1-3, 5-6
7. calculate elapsed time (MA.5.4.7)	Measurement Benchmarks Investigation 3: Session 1-2
8. select appropriate customary and metric units and the tools for measuring to desired degree of precision (MA.5.4.8)	Measurement Benchmarks Investigation 1: Session 1-6 Investigation 2: Session 1-6
9. determine actual measurement from scale drawings (MA.5.4.9)	<i>Can be developed from</i> Measurement Benchmarks Investigation 1: Session 7-8
E. DATA ANALYSIS AND PROBABILITY	
1. collect, organize, display, read, and interpret data from a problem-solving situation in a stem and leaf plot (MA.5.5.1)	<i>Can be developed from</i> Between Never and Always Investigation 1: Session 3-6 Investigation 2: Session 3 Measurement Benchmarks Investigation 2: Session 7-8 Data: Kids, Cats and Ads Investigation 1: Session 1-4 Investigation 2: Session 1-2

West Virginia Specific Criteria	Investigations In Number, Data, and Space
<p>2. determine probability and solve problems involving the probability of an event by using tree diagrams or by construction of a sample space (MA.5.5.2)</p>	<p>Between Never and Always Investigation 1: Session 1-7 Investigation 1: Session 1-5</p>
<p>3. construct, read, and interpret tables, charts, and graphs to draw reasonable inferences or verify predictions (MA.5.5.3)</p>	<p>Name That Portion Investigation 4: Session 1-7 Patterns of Change Investigation 1: Session 1-4 Investigation 2: Session 1-5 Investigation 3: Session 1-6 Data: Kids, Cats and Ads Investigation 1: Session 1-4 Investigation 2: Session 1-2 Investigation 3: Session 1-4 Investigation 4: Session 2-3 Investigation 5: Session 3-5</p>
<p>4. carry out experiments to determine probability (MA.5.5.4)</p>	<p>Between Never and Always Investigation 1: Session 1-7 Investigation 2: Session 1-5</p>
<p>5. construct a circle graph (MA.5.5.5)</p>	<p>Name That Portion Investigation 4: Session 1-7</p>