A Correlation of

SCOTT FORESMAN

Investigations

IN NUMBER, DATA, AND SPACE®

for the Common Core State Standards

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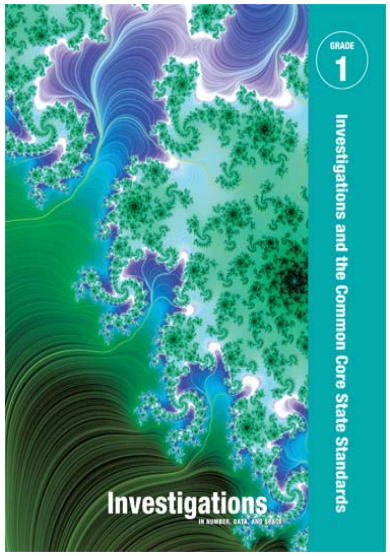

to the

West Virginia Mathematics Criteria

Grade 1

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PUBLISHER:	**Pearson Education Inc., publishing as Scott Foresman**
SUBJECT:	**Mathematics**
SPECIFIC GRADE:	**Grade 1**
COURSE:	**Mathematics - 3001 - MATH 1**
TITLE:	**Scott Foresman Investigations in Number, Data, and Space for the Common Core**
COPYRIGHT DATE:	**2012**
SE ISBN:	**Scott Foresman Investigations in Number, Data, and Space, West Virginia Common Core State Standards Core Curriculum Units Bundle Package with Interactive Whiteboard Access 0328752282** **Scott Foresman Investigations in Number, Data, and Space, West Virginia Common Core State Standards Core Curriculum Units Bundle Package with Manipulatives Kit 0328752347** **Scott Foresman Investigations in Number, Data, and Space, West Virginia Common Core State Standards Core Curriculum Units Bundle Package with Manipulatives Kit and Interactive Whiteboard Access 0328752401**
TE ISBN:	**Scott Foresman Investigations in Number, Data, and Space for the Common Core** **Curriculum Unit: Blocks and Boxes 0328600105** **Curriculum Unit: Color, Shape, and Number Patterns 0328600083** **Curriculum Unit: Fish Lengths and Animal Jumps 0328600067** **Curriculum Unit: How Many of Each? 0328600024** **Curriculum Unit: Making Shapes and Designing Quilts 0328600032** **Curriculum Unit: Number Games and Crayon Puzzles 0328600075** **Curriculum Unit: Solving Story Problems 0328600040** **Curriculum Unit: Twos, Fives, and Tens 0328600091** **Curriculum Unit: What Would You Rather Be? 0328600059** **Investigations and the Common Core State Standards in Grade 1 (includes Common Core State Standards Unit Tabs) 0328683418**

GENERIC EVALUATION CRITERIA
20013-2016 – Off Cycle Year Adoption
Grade 1 Mathematics

R-E-S-P-O-N-S-E			CRITERIA	NOTES
Yes	No	N/A		
X			**I. INTER-ETHNIC** The instructional material meets the requirements of inter-ethnic: concepts, content and illustrations, as set by West Virginia Board of Education Policy (Adopted December 1970).	
X			**II. EQUAL OPPORTUNITY** The instructional material meets the requirements of equal opportunity: concept, content, illustration, heritage, roles contributions, experiences and achievements of males and females in American and other cultures, as set by West Virginia Board of Education Policy (Adopted May 1975).	
X			**III. FORMAT** The resource is available as an option for adoption in an interactive electronic format.	

INSTRUCTIONAL MATERIALS ADOPTION: 21st CENTURY LEARNING EVALUATION CRITERIA

GENERAL EVALUATION CRITERIA

2013-2016 – Off Cycle Year Adoption
Grade 1 Mathematics

INSTRUCTIONAL MATERIALS ADOPTION: GENERAL EVALUATION CRITERIA

The general evaluation criteria apply to each grade level and are to be evaluated for each grade level unless otherwise specified. These criteria consist of information critical to the development of all grade levels. In reading the general evaluation criteria and subsequent specific grade level criteria, **e.g. means "examples of" and i.e. means that "each of" those items must be addressed.** Eighty percent of the general criteria must be met with I (In-depth) or A (Adequate) in order to be recommended.

(Vendor/Publisher) SPECIFIC LOCATION OF CONTENT WITHIN PRODUCT	(IMR Committee) Responses										
	I=In-depth	A=Adequate	M=Minimal	N=Nonexistent	I		A		M		N
For student mastery of content standards and objectives, the instructional materials will provide students with the opportunity to apply:											
	A. MATHEMATICAL PRACTICES										
A major goal of *Investigations in Number, Data, and Space* is to support students to make sense of mathematics and learn that they can become mathematical thinkers. To this end, students create, use, and share contexts and representations to make sense of problems. Classroom discussions highlight different ways of interpreting a problem, solving it, and using representations to communicate the pertinent mathematical ideas.	1. **Make sense of problems and persevere in solving them.** • Explain to themselves the meaning of a problem and looking for entry points to its solution. • Analyze givens, constraints, relationships, and goals • Make conjectures about the form and meaning of the solution attempt. • Plan a solution pathway rather than simply jumping into a solution.										

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Students persevere in solving problems, by investigating and practicing problem-solving strategies. **U1: 2.3, , 2.5, 3.1, 3.2, 3.3, 3.5, 4.1, 4.5, 4.7** **U2: 2.1, 2.4** **U3: 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.8, 1.9, 3.1, 3.5, 4.8** **U3: 1.3, 1.4, 3.4** **U5 ICCG: 3A.4** **U6: 2.1, 2.5, 3.3, 3.4, 3.5, 3.6, 3.8** **U7: 1.8, 2.7** **U8: 1.4, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 3.6** **U8 ICCG: 4A.5** **U9: 2.8**	• Consider analogous problems and try special cases and simpler forms of insight into its solution. • Monitor and evaluate their progress and change course if necessary. • Transform algebraic expressions or change the viewing window on their graphing calculator to get information. • Explain correspondences between equations, verbal descriptions, tables, and graphs. • Draw diagrams of important features and relationships, graph data, and search for regularity or trends. • Use concrete objects or pictures to help conceptualize and solve a problem. • Check their answers to problems using a different method**.** • Ask themselves, “Does this make sense?” • Understand the approaches of others to solving complex problems and identify correspondences between approaches.											

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Another major goal of *Investigations* is to provide a curriculum that emphasizes reasoning about mathematical ideas. Students move between concrete examples with specific quantities, objects, or data and generalizations about what works in similar situations. They express these generalizations in words, with variables, and with various representations including contexts, diagrams, and manipulatives. Abstract and quantitative reasoning are reinforced in strategically challenging games as well as Classroom Routines (Grades K–2) and Ten-Minute Math (Grades 3–5). Students flexibly use different properties of operations to solve problems. **U1: 2.3, 2.4, 2.5, 2.6, 2.7, 3.2, 4.1, 4.2, 4.3, 4.6, 4.7** **U1 ICCG: 2.5A** **U2: 1.2, 1.4, 1.6, 2.1, 2.4** **U3: 1.9, 2.3, 3.2, , 3.3, 3.4, 4.1, 4.3, 4.4, 4.5, 4.6, 4.7** **U3 ICCG: 1.10A** **U4: 1.1, 1.2, 1.3, 1.4, 2.1, 2.3, 2.4, 2.5, 3.4** **U4 ICCG: 3.4A** **U6: 1.2, 1.3, 1.5, 1.6, 1.7, 2.2, 2.3, 2.4, 3.1, 3.2, 3.3, 3.4, 3.6, 3.7, 3.8** **U6 ICCG: 1.8A, 1.8B, 2.6A** **U7: 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7** **U8: 1.1, 1.2, 1.4, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6**	2. **Reason abstractly and quantitatively.** • Make sense of quantities and their relationships in problem situations. • Bring two complementary abilities to bear on problems involving quantitative relationships: o Decontextualize (abstract a given situation and represent it symbolically and manipulate the representing symbols as if they have a life of their own, without necessarily attending to their referents and o Contextualize (pause as needed during the manipulation process in order to probe into the referents for the symbols involved). • Use quantitative reasoning that entails creating a coherent representation of the problem at hand, considering the units involved, and attending to the meaning of quantities, not just how to compute them • Know and flexibly use different properties of operations and objects.											

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U8 ICCG: 1.3A, 4A.1, 4A.2, 4A.3, 4A.4, 4A.5 **U9: 1.1, 1.2, 1.3, 2.8** **U9 ICCG: 2.3A**	(Continued) 2. **Reason abstractly and quantitatively.** • Make sense of quantities and their relationships in problem situations. • Bring two complementary abilities to bear on problems involving quantitative relationships: o Decontextualize (abstract a given situation and represent it symbolically and manipulate the representing symbols as if they have a life of their own, without necessarily attending to their referents and o Contextualize (pause as needed during the manipulation process in order to probe into the referents for the symbols involved). • Use quantitative reasoning that entails creating a coherent representation of the problem at hand, considering the units involved, and attending to the meaning of quantities, not just how to compute them • Know and flexibly use different properties of operations and objects.											

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The program provides ongoing opportunities for students to express and defend mathematical arguments. Students use a variety of representations, contexts, and examples to "prove" their conclusions and provide feedback about the arguments made by their classmates. The program emphasizes that there is often more than one strategy for solving a problem. Students defend their strategies as they listen to and evaluate the choices made by others. Students' strategies are often recorded on a chart and posted so that all students can analyze, review, and use their classmates' ideas. **U1: 3.1, 3.5, 3.6, 3.7, 4.4, 4.7** **U2: 1.1, 1.5, 2.1, 2.2, 2.3, 2.4, 2.5, 3.4** **U3: 4.2, 4.6** **U4: 1.1, 1.2, 1.3, 1.4, 2.1, 2.5, 3.4** **U5: 1.6, 2.1, 2.2, 2.3, 2.5** **U5 ICCG: 1.5A, 3A.1, 3A.2, 3A.3, 3A.4** **U6: 1.5,1.6, 1.7, 2.1, 2.2, 2.3, 3.2, 3.5** **U6 ICCG: 2.6A** **U7: 1.1, 1.3, 2.5, 2.6** **U8: 1.4, 3.6** **U9: 1.4, 1.5** **U9 ICCG: 2.3A**	3. **Construct viable arguments and critique the reasoning of others.** • Understand and use stated assumptions, definitions, and previously established results in constructing arguments. • Make conjectures and build a logical progression of statements to explore the truth of their conjectures. • Analyze situations by breaking them into cases • Recognize and use counterexamples. • Justify their conclusions, communicate them to others, and respond to the arguments of others. • Reason inductively about data, making plausible arguments that take into account the context from which the data arose. • Compare the effectiveness of plausible arguments. • Distinguish correct logic or reasoning from that which is flawed and, if there is a flaw, explain what it is o Elementary students construct arguments using concrete referents such as objects, drawings, diagrams, and actions. o Later students learn to determine domains to which an argument applies. • Listen or read the arguments of others, decide whether they make sense, and ask useful question to clarify or improve arguments.											

U1 How Many of Each?
U2 Making Shapes and Designing Quilts
U3 Solving Story Problems
U4 What Would You Rather Be?
U5 Fish Lengths and Animal Jumps
U6 Number Games and Crayon Puzzles
U7 Color, Shape, and Number Puzzles
U8 Twos, Fives, and Tens
U9 Blocks and Boxes
ICCG Investigations and the Common Core State Standards Guide

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Throughout the curriculum, students use representations and contexts to visualize, describe, and analyze mathematical relationships. Using these models allows students to express and further develop their ideas, and to engage in the ideas of others. They develop a repertoire of models they know well and can apply when faced with unfamiliar problem situations. Students use representations and contexts judiciously and with purpose. **U1: 1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.5, 3.1, 3.3, 3.4, 3.5, 4.1, 4.5, 4.6** **U2: 1.7** **U3: 1.1, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 4.1, 4.4, 4.7** **U3 ICCG: 1.10A** **U4: 1.3, 2.2, 2.4** **U4 ICCG: 3.4A** **U5: 1.1, 1.4, 1.6, 2.4** **U6: 1.1, 1.2, 1.3, 1.4, 1.6, 1.7, 2.1, 2.2, 2.3, 2.4, 2.5, 3.1, 3.2, 3.3, 3.6, 3.7, 3.8** **U6 ICCG: 1.8A, 1.8B, 2.6A** **U7: 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7** **U8: 1.1, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 3.1, 3.2, 3.3, 3.4, 3.5** **U8 ICCG: 4A.1, 4A.2,4A.3, 4A.4, 4A.5** **U9: 1.1, 1.2, 1.3, 1.5, 2.1, 2.2, 2.8** **U9 ICCG: 2.3A**	4. **Model with mathematics.** • Apply the mathematics they know to solve problems arising in everyday life, society, and the workplace. o In early grades, this might be as simple as writing an addition equation to describe a situation. In middle grades, a student might apply proportional reasoning to plan a school event or analyze a problem in the community. o By high school, a student might use geometry to solve a design problem or use a function to describe how one quantity of interest depends on another. • Make assumptions and approximations to simplify a complicated situation, realizing that these may need revision later. • Identify important quantities in a practical situation • Map their relationships using such tools as diagrams, two-way tables, graphs, flowcharts and formulas. • Analyze those relationships mathematically to draw conclusions. • Interpret their mathematical results in the context of the situation. • Reflect on whether the results make sense, possibly improving the model if it has not served its purpose.											

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Students have access to an array of tools, such as connecting cubes, pattern blocks, 100 charts, and technology. Students use other tools, such as drawings, the number line, or a rectangular array. Mathematical tools are introduced that are useful for a whole class of problems and can be extended to accommodate more complex problems and/or students' expanding repertoire of numbers. Analysis of the solution to a problem includes consideration of the effectiveness and choice of the tools. During Math Workshops, students continue to use tools to foster mathematical understanding and to practice skills. **U1: 2.1, 2.2** **U2: 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 2.2, 2.3** **U3: 1.1, , 1.4, 2.1, 2.2, 4.3, 4.4, 4.5, 4.6** **U4: 2.1, 2.2, 2.5** **U5: 1.1, 1.2, 1.3, 1.4, 1.6, 2.1, 2.2, 2.3, 2.4, 2.5** **U5 ICCG: 1.5A** **U6: 1.4, 3.4, 3.5** **U9: 1.3, 1.4, 1.5, 2.1, 2.2,** **U9 ICCG: 2.3A**	5. **Use appropriate tools strategically.** • Consider available tools when solving a mathematical problem. (these tools might include pencil and paper, concrete models, a ruler, protractor, calculator, spreadsheet, computer algebra system, a statistical package, or dynamic geometry software. • Are sufficiently familiar with tools appropriate for their grade or course to make sound decisions about when each of these tools might be helpful, recognizing both the insight to be gained and their limitations. o High school students analyze graphs of functions and solutions generated using a graphing calculator • Detect possible errors by using estimations and other mathematical knowledge. • Know that technology can enable them to visualize the results of varying assumptions, explore consequences, and compare predictions with data. • Identify relevant mathematical resources and use them to pose or solve problems. • Use technological tools to explore and deepen their understanding of concepts.										

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Every session requires students to communicate with precision. The Student Math Handbook provides support in this endeavor. Strategies that students use are often named by the mathematics used in order to foster precise communication. Many of the sessions' focal points stress the use of "clear and concise" notation. Students are expected to solve problems efficiently and accurately. **U1: 2.1, 2.7, 3.3, 3.5, 3.7, 4.2, 4.3, 4.4, 4.5, 4.6** **U3: 1.2, 1.5, 1.6, 1.7, 3.3, 4.2** **U4: 2.3** **U5: 1.1, 1.2, 1.3, 1.4, 1.6, 2.1, 2.2, 2.3, 2.4, 2.5** **U5 ICCG: 1.5A** **U6: 1.1, 1.2, 1.3, 1.4** **U9: 1.1, 1.21.3, 1.4, 1.5, 2.1, 2.2** **U9 ICCG: 2.3A**	6. **Attend to precision.** • Try to communicate precisely to others. • Try to use clear definitions in discussion with others and in their own reasoning. • State the meaning of the symbols they choose, including using the equal sign consistently and appropriately. • Specify units of measure and label axes to clarify the correspondence with quantities in a problem. • Calculate accurately and efficiently, express numerical answers with a degree of precision appropriate for the problem context. o In the elementary grades, students give carefully formulated explanations to each other. o In high school, students have learned to examine claims and make explicit use of definitions.											

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In each unit, students work between the concrete to the abstract, from numerical and geometrical patterns to general representations. Students are given opportunities and support to investigate, discover, conjecture, and make use of commonalities among related problems. Students use the structure of carefully chosen contexts and representations that embody important characteristics of mathematical relationships. Classroom Routines (Grades K–2) and Ten-Minute Math (Grades 3–5) afford more situations in which students discover and use the various structures of mathematics. **U1: 1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 2.4, 2.6, 2.7, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7** **U1 ICCG: 2.5A** **U2: 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 2.1, 2.2, 2.3, 2.4, 2.5, 3.4** **U3: 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 3.5, 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8** **U3 ICCG: 1.10A** **U4: 1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 2.4, 2.5, 3.4** **U4 ICCG: 3.4A** **U5: 1.1, 1.2, 1.3, 1.4, 1.6, 2.1, 2.2, 2.3, 2.4, 2.5** **U5 ICCG: 1.5A, 3A.1, 3A.2, 3A.3, 3A.4** **U6: 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 2.1, 2.2, 2.4, 2.5, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8**	7. **Look for and make use of structure.** • Look closely to discern a pattern or structure. o Young students might notice that three and seven more is the same amount as seven and three more or they may sort a collection of shapes according to how many sides the shapes have. o Later, students will see 7 x 8 equals the well remembered 7 x 5 + 7 x 3, in preparation for the distributive property. o In the expression $x^2 + 9x + 14$, older students can see the 14 as 2 x 7 and the 9 as 2 + 7. They recognize the significance of an existing line in a geometric figure and can use the strategy of drawing an auxiliary line for solving problems. • Step back for an overview and can shift perspective. • See complicated things, such as some algebraic expressions, as single objects or composed of several objects.											

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U7: 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.82.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7 **U8: 1.1, 1.2, 1.4, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6** **U8 ICCG: 1.3A, 4A.1, 4A.2, 4A.3, 4A.4, 4A.5** **U9: 1.1, 1.2, 1.4, 1.5, 2.2, 2.8** **U1–6, U8–9: Classroom Routines: Quick Images**	(Continued) 7. **Look for and make use of structure.** • Look closely to discern a pattern or structure. o Young students might notice that three and seven more is the same amount as seven and three more or they may sort a collection of shapes according to how many sides the shapes have. o Later, students will see 7 x 8 equals the well remembered 7 x 5 + 7 x 3, in preparation for the distributive property. o In the expression $x^2 + 9x + 14$, older students can see the 14 as 2 x 7 and the 9 as 2 + 7. They recognize the significance of an existing line in a geometric figure and can use the strategy of drawing an auxiliary line for solving problems. • Step back for an overview and can shift perspective. • They can see complicated things, such as some algebraic expressions, as single objects or composed of several objects.										

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A hallmark of the Investigations program is its emphasis on helping students become mathematical thinkers as they explore and practice strategies for solving problems. Through repeated application and comparison of various strategies and algorithms, students develop an understanding of which method is efficient for a particular type of problem. Each Investigations unit on numbers and operations includes a focus on reasoning and generalizing about number and operations and highlights what students already notice in regularities about numbers and operations. **U1: 2.4, 3.6, 3.7** **U3: 1.3, 1.7, 1.8, 3.1, 3.4, 3.5, 4.8** **U6: 2.3, 2.4, 2.5, 3.1, 3.7** **U6 ICCG: 1.8A, 1.8B, 2.6A** **U7: 2.1, 2.2, 2.3, 2.4** **U8: 3.3, 3.4, 3.5**	8. **Look for and express regularity in repeated reasoning.** • Notice if calculations are repeated. • Look both for general methods and for shortcuts. o Upper elementary students might notice when dividing 25 by 11 that they are repeating the same calculations over and over again, and conclude they have a repeated decimal. o Middle school students might abstract the equation (y-2)/((x-1)=3 by paying attention to the calculation of slope as they repeatedly check whether the points are on the line through (1,2) with a slope 3. o Noticing the regularity in the way terms cancel when expanding $(x-1)(x+1)(x^2+1)$ and $(x-1)(x^3+x^2+x+1)$ might lead high school students to the general formula for the sum of a geometric series. • Maintain oversight of the process of solving a problem, while attending to the details. • Continually evaluate the reasonableness of intermediate results.											

SPECIFIC EVALUATION CRITERIA

2013-2016 – Off Cycle Year Adoption

Grade 1 Mathematics

In Grade 1, instructional time should focus on four critical areas: (1) developing understanding of addition, subtraction and strategies for addition and subtraction within 20; (2) developing understanding of whole number relationships and place value, including grouping in tens and ones; (3) developing understanding of linear measurement and measuring lengths as iterating length units; and (4) reasoning about attributes of and composing and decomposing geometric shapes.

1. Students develop strategies for adding and subtracting whole numbers based on their prior work with small numbers. They use a variety of models, including discrete objects and length-based models (e.g., cubes connected to form lengths), to model add-to, take-from, put-together, take-apart and compare situations to develop meaning for the operations of addition and subtraction and to develop strategies to solve arithmetic problems with these operations. Students understand connections between counting and addition and subtraction (e.g., adding two is the same as counting on two). They use properties of addition to add whole numbers and to create and use increasingly sophisticated strategies based on these properties (e.g., "making tens") to solve addition and subtraction problems within 20. By comparing a variety of solution strategies, children build their understanding of the relationship between addition and subtraction.

2. Students develop, discuss and use efficient, accurate and generalizable methods to add within 100 and subtract multiples of 10. They compare whole numbers (at least to 100) to develop understanding of and solve problems involving their relative sizes. They think of whole numbers between 10 and 100 in terms of tens and ones (especially recognizing the numbers 11 to 19 as composed of a ten and some ones). Through activities that build number sense, they understand the order of the counting numbers and their relative magnitudes.

3. Students develop an understanding of the meaning and processes of measurement, including underlying concepts such as iterating (the mental activity of building up the length of an object with equal-sized units) and the transitivity principle for indirect measurement.[1]

4. Students compose and decompose plane or solid figures (e.g., put two triangles together to make a quadrilateral) and build understanding of part-whole relationships as well as the properties of the original and composite shapes. As they combine shapes, they recognize them from different perspectives and orientations, describe their geometric attributes and determine how they are alike and different, to develop the background for measurement and for initial understandings of properties such as congruence and symmetry.

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For student mastery of content standards and objectives, the instructional materials will provide students with the opportunity to											
	A. Operations & Algebraic Thinking										
	Represent and solve problems involving addition and subtraction.										
U1 Sessions 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 4.1, 4.3, 4.4, 4.5, 4.6, 4.7 **U3 Sessions** 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 3.5, 4.8 **U5 Sessions** 1.4, 2.4, 2.5 **U5 ICCG:** 1.5A **U6 Sessions** 1.2, 1.3, 1.4, 2.1, 2.2, 2.4, 2.5, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8 **U6 ICCG:** 1.8A, 1.8B **U7 Sessions** 1.4, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7 **U8 Sessions** 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 3.4 **U8 ICCG:** 1.6A, 1.6B, 1.6C **U9 Sessions** **U9 ICCG:** 1.3A	1. use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart and comparing, with unknowns in all positions, e.g., by using objects, drawings and equations with a symbol for the unknown number to represent the problem.										
U1 Sessions 3.7, 4.2 **U3 Session** 1.5 **U6 Sessions** 1.1, 3.3, 3.4, 3.5, 3.6, 3.7 **U6 ICCG:** 1.8A, 1.8B **U7 Sessions** 1.4, 2.1, 2.4 **U8 Sessions** 2.3, 3.4 **U8 ICCG:** 1.3A **U9 Sessions** 1.3, 2.1	2. solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings and equations with a symbol for the unknown number to represent the problem.										

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	I=In-depth	A=Adequate	M=Minimal	N=Nonexistent	I		A		M		N	
	Understand and apply properties of operations and the relationship between addition and subtraction.											
U1 Sessions 3.7, 4.2, 4.6 **U3 Sessions** 1.5, 1.7, 2.3, 3.2, 3.3, 3.4 **U6 Sessions** 1.3, 1.4, 1.6, 1.7, 2.1, 3.1, 3.2, 3.3, 3.6, 3.7, 3.8 **U6 ICCG:** 2.6A **U8 Sessions** 3.3, 3.4, 3.5	3. apply properties of operations as strategies to add and subtract. *Examples: If 8 + 3 = 11 is known, then 3 + 8 = 11 is also known. (Commutative Property of Addition.) To add 2 + 6 + 4, the second two numbers can be added to make a ten, so 2 + 6 + 4 = 2 + 10 = 12. (Associative Property of Addition.) (Students need not use formal terms for these properties.)*											
U1 Session 4.4 **U3 Sessions** 1.2, 1.3, 1.4, 1.9, 2.3, 3.3, 3.4, 3.5, 4.8 **U6 Sessions** 1.3, 1.4, 1.5, 1.7, 3.6, 3.7, 3.8 **U6 ICCG:** 1.8A, 1.8B	4. understand subtraction as an unknown-addend problem. *For example, subtract 10 – 8 by finding the number that makes 10 when added to 8.*											
	Add and subtract within 20.											
U1 Sessions 2.2, 2.5, 2.6, 3.3, 3.4, 3.5, 3.6, 3.7 **U1 ICCG:** 2.5A **U3 Sessions** 1.5, 1.6, 1.7, 1.8, 2.1, 2.2, 2.3, 3.1, 3.4, 3.5 **U6 Sessions** 1.6, 3.2, 3.3, 3.6, 3.7, 3.8 **U6 ICCG:** 1.8A, 1.8B **U7 Sessions** 2.1, 2.6, 2.7 **U8 Sessions** 1.1, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 3.6	5. relate counting to addition and subtraction (e.g., by counting on 2 to add 2).											

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U1 Sessions 2.5, 2.6, 3.3, 3.4, 3.5, 3.6, 3.7, 4.2, 4.6, 4.7 **U1 ICCG:** 2.5A **U3 Sessions** 1.5, 1.6, 1.7, 1.8, 2.1, 2.2, 2.3, 3.1, 3.2, 3.4, 3.5, 4.8 **U6 Sessions** 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 2.3, 2.4, 2.5, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8 **U6 ICCG:** 1.8A, 1.8B, 2.6A **U7 Sessions** 1.4, 2.1, 2.4, 2.6, 2.7 **U8 Sessions** 1.1, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 3.3, 3.4, 3.5, 3.6 **U8 ICCG:** 1.3A **U9 Sessions** 1.3, 2.1	6. add and subtract within 20, demonstrating fluency for addition and subtraction within 10 and use strategies such as counting on; making ten (e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14); decomposing a number leading to a ten (e.g., 13 – 4 = 13 – 3 – 1 = 10 – 1 = 9); using the relationship between addition and subtraction (e.g., knowing that 8 + 4 = 12, one knows 12 – 8= 4); and creating equivalent but easier or known sums (e.g., adding 6 +7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13).										
	Work with addition and subtraction equations.										
U1 Sessions 3.3, 3.4, 3.5, 3.7, 4.2, 4.3, 4.4, 4.5, 4.6 **U3 Sessions** 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 3.5 **U3 ICCG:** 1.10A **U6 Sessions** 2.1, 2.2, 2.3, 2.4, 2.5, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8 **U6 ICCG:** 2.6A **U7 Session** 1.2 **U8 Session** 3.1	7. understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. *For example, which of the following equations are true and which are false? 6 = 6, 7 = 8 – 1,5 + 2 = 2 + 5, 4 + 1 = 5 + 2.*										
U1 Session 4.4 **U3 Sessions** 1.2, 3.5 **U3 ICCG:** 1.10A **U6 Sessions** 1.6, 3.7 **U6 ICCG:** 1.8A, 1.8B, 2.6A **U7 Sessions** 1.4, 2.1, 2.2, 2.4 **U8 Sessions** 1.3A, 2.3, 3.1, 3.4, 3.5 **U9 Sessions** 1.3, 2.1	8. determine the unknown whole number in an addition or subtraction equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations 8 + ? = 11, 5 = ? – 3, 6 + 6 =?.*										

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	I=In-depth	A=Adequate	M=Minimal	N=Nonexistent	I		A		M		N
	2. Number & Operations in Base Ten **Extend the counting sequence.**										
U1 Sessions 1.1, 1.2, 1.4, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 3.1, 3.2, 3.4, 3.6, 4.1, 4.5 **U1 ICCG:** 2.5A **U2 Sessions** 1.1, 1.2, 1.5, 1.6, 1.7 **U3 Sessions** 1.2, 1.3, 1.4, 1.6, 1.7, 1.8, 1.9, 2.1, 2.2, 2.3, 3.2, 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8 **U4 Sessions** 1.1, 1.2, 2.1, 2.2, 2.3, 2.5 **U5 Sessions** 2.1, 2.2, 2.5 **U6 Sessions** 1.1, 1.2, 1.3, 1.5, 2.1, 2.4, 3.2, 3.4, 3.5, 3.7 **U7 Sessions** 1.1, 1.2, 1.3, 1.6, 1.7, 2.2, 2.3, 2.5, 2.6 **U8 Sessions** 1.1, 1.2, 1.4, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 3.5, **U8 ICCG:** 1.3A, 4A.1, 4A.2, 4A.3, 4A.4, 4A.5	1. count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.										

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	Understand place value.											
U2 Sessions 1.1, 1.2, 1.5, 1.6, 1.7 **U3 Sessions** 1.2, 1.3, 1.4, 1.6, 1.7, 1.8, 1.9, 2.1, 2.2, 2.3, 3.2, 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8 **U5 Sessions** 2.1, 2.2, 2.5 **U6 Sessions** 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 2.1, 2.5, 3.3 **U8 Sessions** 1.1, 1.2, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 3.1, 3.2, 3.2, 3.4, 3.5, 3.6 **a**. **U6 Sessions** 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7 **U8 Sessions** 2.4, 2.6, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6 **U8 ICCG:** 4A.1, 4A.2, 4A.3, 4A.4, 4A.5 **b. U8 Sessions** 3.3, 3.4, 3.5 **c**. **U8 Sessions** 3.2, 3.4, 3.5 **U8 ICCG:** 4A.1, 4A.2, 4A.3, 4A.4, 4A.5	2. understand the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases: a. 10 can be thought of as a bundle of ten ones — called a "ten." b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight or nine ones. c. The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight or nine tens (and 0 ones).										
U1 Sessions 2.4, 2.5, 2.6, 2.7, 3.1 **U3 Session** 4.7 **U4 Session** 1.3 **U5 Session** 2.4 **U6 Sessions** 1.2, 3.8 **U7 Session** 1.3 **U8 ICCG:** 4A.1, 4A.5 **U9 Sessions** 1.2, 2.8	3. compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <.											

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	Use place value understanding and properties of operation to add and subtract.											
U8 ICCG: 4A.1, 4A.2, 4A.3, 4A.4, 4A.5	4. add within 100, including adding a two-digit number and a one-digit number and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used and understand that in adding two-digit numbers, one adds tens and tens, ones and ones and sometimes it is necessary to compose a ten.											
U8 ICCG: 4A.2, 4A.5	5. given a two-digit number, mentally find 10 more or 10 less than the number, without having to count and explain the reasoning used.											
U8 ICCG: 4A.4, 4A.5	6. subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90 (positive or zero differences) using concrete models or drawings and strategies based on place value, properties of operations and/or the relationship between addition and subtraction and relate the strategy to a written method and explain the reasoning used.											
	C. Measurement & Data **Measure lengths indirectly and by iterating length units.**											
U5 Sessions 1.4, 2.1, 2.3, 2.4, 2.5 **U5 ICCG:** 1.5A	1. order three objects by length and compare the lengths of two objects indirectly by using a third object.											

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U5 Sessions 1.1, 1.2, 1.3, 1.4, 1.6, 2.1, 2.2, 2.3, 2.4, 2.5 **U5 ICCG:** 1.5A	2. express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end and understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.											
	Tell and Write Time											
U4 Session 2.5 **U5 Sessions** 1.1, 1.6 **U5 ICCG:** 1.5A, 3A.1 **U6 ICCG:** 1.8A, 1.8B, 2.6A **U7 Session** 1.8 **U8 Session** 3.1 **U9 ICCG:** 2.3A	3. tell and write time in hours and half-hours using analog and digital clocks.											
	Represent and interpret data.											
U1 Sessions 1.3, 4.7 **U3 Session** 4.7 **U4 Sessions** 1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 2.4, 2.5, 3.4 **U4 ICCG:** 3.4A **U5 Sessions** 1.4, 2.4 **U6 Sessions** 1.2, 1.4, 1.7, 2.3, 3.1, 3.8 **U7 Sessions** 1.3, 1.7, 2.3, 2.7 **U8 ICCG:** 4A.5 **U9 Sessions** 1.2, 2.8	4. organize, represent, interpret data with up to three categories, ask and answer questions about the total number of data points, how many in each category and how many more or less are in one category than in another.											

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	D. Geometry **Reason with Shapes and Their Attributes**										
U2 Sessions 1.1, 1.2, 1.3, 1.4, 1.7, 2.1, 2.2, 2.3, 2.4, 2.5, 3.4 **U4 Session** 1.1 **U9 Sessions** 1.1, 1.2, 1.3, 1.4, 1.5, 2.2, 2.8 **U9 ICCG:** 2.3A	1. distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size), build and draw shapes to possess defining attributes.										
U2 Sessions 1.4, 1.5, 1.6, 1.7, 3.4 **U5 ICCG:** 3A.1, 3A.2, 3A.3, 3A.4 **U9 Sessions** 1.2, 2.2, 2.8 **U9 ICCG:** 2.3A	2. compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones and right circular cylinders) to create a composite shape and compose new shapes from the composite shape. (Students do not need to learn formal names such as ”right rectangular prism.”)										
U6 ICCG: 3A.1, 3A.2, 3A.3, 3A.4	3. partition circles and rectangles into two and four equal shares, describe the shares using the words halves, fourths and quarters and use the phrases half of, fourth of and quarter of, describe the whole as two of, or four of the shares and understand for these examples that decomposing into more equal shares creates smaller shares.										