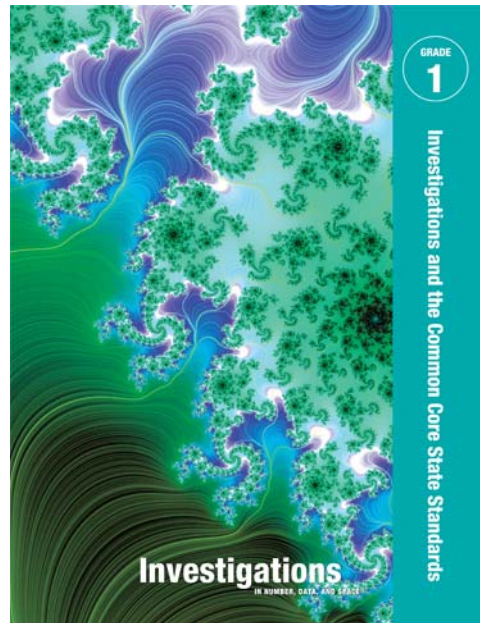


A Correlation of

SCOTT FORESMAN
Investigations
IN NUMBER, DATA, AND SPACE®

©2012



to the

**Common Core State Standards
for Mathematics**

Grade 1

A Correlation of Investigations in Number, Data, and Space, ©2012 to the Common Core State Standards for Mathematics

Introduction

This document demonstrates how *Investigations in Number, Data, and Space* ©2012 meets the indicators of the Common Core State Standards for Mathematics, Grade 1. Correlation references are to the unit number and are cited at the session level. This correlation includes Classroom Routines but does not include ongoing review in Daily Practice and Homework.

Investigations in Number, Data, and Space supports students in making sense of mathematics and becoming mathematical thinkers. The program is designed to help all elementary children understand the fundamental ideas underlying number and arithmetic, geometry, data, measurement, and algebraic thinking. Students are encouraged to reason mathematically, develop problem-solving strategies, and represent their thinking using models, diagrams, and graphs. In addition to engaging the range of math learners, *Investigations* communicates mathematics content and pedagogy to teachers, offering them greater support built into every lesson, so that all students are successful.

Each grade level consists of a set of units, presented through investigations that involve students in the exploration of major mathematical ideas. Students gain a greater understanding of math, with meaningful practice and review that result in computational fluency. They build a greater foundation for algebra that prepares them for the challenges in middle and high school math courses.

Approaching the mathematics content through investigations helps student develop flexibility and confidence in approaching problems, fluency in using mathematical skills and tools to solve problems, and proficiency in evaluating their solutions. Students also build a repertoire of ways to communicate about their mathematical thinking, while their enjoyment and application of mathematics grows.

New to the program for the Common Core State Standards

INVESTIGATIONS AND THE COMMON CORE STATE STANDARDS Resource Book contains:

- Overview of the Common Core State Standards and Investigations
- Alignment to the Standards for Mathematical Practice
- Correlation to the Standards for Mathematical Content
- Instructional Plan for each Unit
- New Teacher Material for each Unit
- Common Core Student Activity Black Line Masters

Curriculum Units

Grade 1

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

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Common Core State Standards for Mathematics, Grade 1	Investigations in Number, Data, and Space, ©2012 Grade 1
Operations and Algebraic Thinking 1.OA	
Represent and solve problems involving addition and subtraction.	
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. [1.OA.1.]	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 ICCG: 1.3A
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. [1.OA.2.]	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
Understand and apply properties of operations and the relationship between addition and subtraction.	
3. Apply properties of operations as strategies to add and subtract. [1.OA.3.]	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
4. Understand subtraction as an unknown-addend problem. [1.OA.4.]	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

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Common Core State Standards for Mathematics, Grade 1	Investigations in Number, Data, and Space, ©2012 Grade 1
Add and subtract within 20.	
<p>5. Relate counting to addition and subtraction (e.g., by counting on 2 to add 2). [1.OA.5.]</p>	<p>U1 Sessions: 2.2, 2.5A, 2.5, 2.6, 3.3, 3.4, 3.5, 3.6, 3.7 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</p>
<p>6. Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. 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 $6 + 6 + 1 = 12 + 1 = 13$). [1.OA.6.]</p>	<p>U1 Sessions: 2.5A, 2.5, 2.6, 3.3, 3.4, 3.5, 3.6, 3.7, 4.2, 4.6, 4.7 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</p>
Work with addition and subtraction equations.	
<p>7. Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. [1.OA.7.]</p>	<p>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</p>
<p>8. Determine the unknown whole number in an addition or subtraction equation relating to three whole numbers. [1.OA.8.]</p>	<p>U1 Session: 4.4 U3 Sessions: 1.2, 1.10A, 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</p>

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Common Core State Standards for Mathematics, Grade 1	Investigations in Number, Data, and Space, ©2012 Grade 1
Number and Operations in Base Ten 1.NBT	
Extend the counting sequence.	
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. [1.NBT.1.]	<p>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</p> <p>U1 ICCG: 2.5A</p> <p>U2 Sessions: 1.1, 1.2, 1.5, 1.6, 1.7</p> <p>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</p> <p>U4 Sessions: 1.1, 1.2, 2.1, 2.2, 2.3, 2.5</p> <p>U5 Sessions: 2.1, 2.2, 2.5</p> <p>U6 Sessions: 1.1, 1.2, 1.3, 1.5, 2.1, 2.4, 3.2, 3.4, 3.5, 3.7</p> <p>U7 Sessions: 1.1, 1.2, 1.3, 1.6, 1.7, 2.2, 2.3, 2.5, 2.6</p> <p>U8 Sessions: 1.1, 1.2, 1.3A, 1.4, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 3.5,</p> <p>U8 ICCG: 4A.1, 4A.2, 4A.3, 4A.4, 4A.5</p>
Understand place value.	
2. Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases: [1.NBT.2.]	
a. 10 can be thought of as a bundle of ten ones — called a “ten.” [1.NBT.2.a.]	<p>U6 Sessions: 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7</p> <p>U8 Sessions: 2.4, 2.6, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6</p> <p>U8 ICCG: 4A.1, 4A.2, 4A.3, 4A.4, 4A.5</p>
b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones. [1.NBT.b.]	U8 Sessions: 3.3, 3.4, 3.5
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). [1.NBT.c.]	<p>U8 Sessions: 3.2, 3.4, 3.5</p> <p>U8 ICCG: 4A.1, 4A.2, 4A.3, 4A.4, 4A.5</p>
3. Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols $>$, $=$, and $<$. [1.NBT.3.]	<p>U1 Sessions: 2.4, 2.5, 2.6, 2.7, 3.1</p> <p>U3 Session: 4.7</p> <p>U4 Session: 1.3</p> <p>U5 Session: 2.4</p> <p>U6 Sessions: 1.2, 3.8</p> <p>U7 Session: 1.3</p> <p>U8 ICCG: 4A.1, 4A.5</p> <p>U9 Sessions: 1.2, 2.8</p>

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Common Core State Standards for Mathematics, Grade 1	Investigations in Number, Data, and Space, ©2012 Grade 1
Use place value understanding and properties of operations to add and subtract.	
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. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten. [1.NBT.4.]	U8 ICCG: 4A.1, 4A.2, 4A.3, 4A.4, 4A.5
5. Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used. [1.NBT.5.]	U8 ICCG: 4A.2, 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; relate the strategy to a written method and explain the reasoning used. [1.NBT.6.]	U8 ICCG: 4A.4, 4A.5
Measurement and Data 1.MD	
Measure lengths indirectly and by iterating length units.	
1. Order three objects by length; compare the lengths of two objects indirectly by using a third object. [1.MD.1.]	U5 Sessions: 1.4, 2.1, 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; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. <i>Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.</i> [1.MD.2.]	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

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Tell and write time.	
3. Tell and write time in hours and half-hours using analog and digital clocks. [1.MD.3.]	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
Represent and interpret data.	
4. Organize, represent, and 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. [1.MD.4]	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
Geometry 1.G	
Reason with shapes and their attributes.	
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. [1.G.1.]	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
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. (<i>Students do not need to learn formal names such as "right rectangular prism."</i>) [1.G.2.]	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
3. Partition circles and rectangles into two and four equal shares, describe the shares using the words <i>halves</i> , <i>fourths</i> , and <i>quarters</i> , and use the phrases <i>half of</i> , <i>fourth of</i> , and <i>quarter of</i> . Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares. [1.G.3.]	U6 ICCG: 3A.1, 3A.2, 3A.3, 3A.4

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Math Practices	
<p>1. Make sense of problems and persevere in solving them.</p>	<p>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. Students persevere in solving problems by investigating and practicing problem-solving strategies.</p> <p>Please find representative examples from the Grade 1 program:</p> <p>U1 Sessions: 3.1, 3.2, 3.3, 3.5, 4.1, 4.5 U3 Sessions: 1.1, 1.2, 1.3, 1.4, 3.1 U6 Sessions: 3.4, 3.5 U8 Sessions: 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7</p>
<p>2. Reason abstractly and quantitatively.</p>	<p>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). Students flexibly use different properties of operations to solve problems.</p> <p>Please find representative examples from the Grade 1 program:</p> <p>U1 Sessions: 2.4, 2.5, 2.6, 2.7 U2 Sessions: 1.2, 1.4 U3 Sessions: 3.2, 4.6 U6 Sessions: 3.1, 3.2, 3.3 U7 Sessions: 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7</p>

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<p align="center">Common Core State Standards for Mathematics, Grade 1</p>	<p align="center">Investigations in Number, Data, and Space, ©2012 Grade 1</p>
<p>3. Construct viable arguments and critique the reasoning of others.</p>	<p>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.</p> <p>Please find representative examples from the Grade 1 program:</p> <p>U1 Sessions: 3.1, 3.5, 3.6, 3.7, 4.4 U2 Session: 1.1 U3 Session: 4.6 U4 Session: 2.5 U5 Sessions: 1.5A, 1.6, 2.1</p>
<p>4. Model with mathematics.</p>	<p>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.</p> <p>Please find representative examples from the Grade 1 program:</p> <p>U1 Sessions: 3.3, 3.4, 3.5 U3 Sessions: 2.1, 2.2, 2.3 U6 Sessions: 1.2, 1.3, 1.4, 2.1 U7 Session: 2.6 U8 Sessions: 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7</p>

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<p>5. Use appropriate tools strategically.</p>	<p>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.</p> <p>Please find representative examples from the Grade 1 program:</p> <p>U1 Sessions: 2.1, 2.2 U2 Sessions: 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7 U3 Sessions: 4.3, 4.4, 4.5 U5 Sessions: 2.1, 2.2, 2.3, 2.4, 2.5 U6 Session: 1.4</p>
<p>6. Attend to precision.</p>	<p>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.</p> <p>Please find representative examples from the Grade 1 program:</p> <p>U1 Sessions: 2.7, 3.3, 3.5, 3.7, 4.2, 4.4, 4.5 U3 Sessions: 1.2, 1.5, 1.6, 1.7, 3.3 U5 Sessions: 2.2, 2.3, 2.4, 2.5 U6 Session: 1.1, 1.2, 1.3, 1.4</p>

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<p>7. Look for and make use of structure.</p>	<p>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) afford more situations in which students discover and use the various structures of mathematics.</p> <p>Please find representative examples from the Grade 1 program:</p> <p>U2 Sessions: 2.1, 2.2, 2.3, 2.4, 2.5 U4 Sessions: 1.1, 1.2, 1.3, 1.4 U7 Session: 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8 U8 Sessions: 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8 U1– U6 Classroom Routines: Quick Images U8– U9 Classroom Routines: Quick Images</p>
<p>8. Look for and express regularity in repeated reasoning.</p>	<p>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.</p> <p>Found throughout the Grade 1 program; some examples:</p> <p>U1 Sessions: 2.4, 3.6, 3.7 U3 Sessions: 1.7, 1.8 U6 Sessions: 2.3, 2.4, 2.5, 3.7 U8 Sessions: 3.3, 3.4, 3.5</p>