Kindergarten Unit 8: Computing & Measuring with Frogs & Bugs

Big Conceptual Idea:  K-5 Progression on Number and Operations in Base Ten (pp. 1-5) K-5 Progression on Counting and Cardinality and Operations and Algebraic Thinking (pp. 1-11), K-5 Progression on Measurement and Data (Measurement Part) (pp. 1-4, 6-7), K-5 Progression on Measurement and Data (Data Part) (pp. 1-5)

Read the Bridges Unit Overview/Introduction for Unit 8 pp. i-vi. Also read each Module Overview for the current week’s sessions, and the current Session Summary along with details for the teaching of each session as you work through Unit 3. These Introduction/Overview/Summary sections provide focus, clarity, vocabulary, definitions, and examples for the “big mathematical ideas and understandings” critical to Kindergarten. This information will support your professional decision-making within the Sessions and Modules as needed.

Mathematical Background:
Read Bridges Unit 8 Overview and Introduction (pp. i-vi)

Unit Essential Question for the Teacher:
How can my understanding of a progression of addition and subtraction strategies and problem types support my students’ development to fluently add and subtract within 5? How might I support their understanding of number combinations to 10 by efficiently using the five-structure? How might I solidify their understanding of place value as 10 and some more 1s?

Instructional note:
“If you learn something deeply, the synaptic activity will create lasting connections in your brain, forming structural pathways, but if you visit an idea only once or in a superficial way, the synaptic connections can “wash away” like pathways made in the sand” (Boaler, 2016, p. 1).

Unit 8 Sessions prepare students for the transition into 1st grade by reinforcing what students’ already know about counting and cardinality, combinations of numbers within 5 and to 10, and then with 10 ones and some more ones. They also encourage development of place value understanding and beginning fluency with addition and subtraction. Students continue to use five-frames, ten-frames, double ten-frames, cubes, craft sticks, the number line and the number rack to visualize these relationships. They also explore written notations to 20. Van de Walle, Karp, and Bay-Williams state there is overwhelming emphasis in math instruction that addition is simply put together and subtraction is simply take away. “The fact is these are not definitions of addition and subtraction. When students develop these limited definitions they often have difficulty later when addition and subtraction structures are different from put together and take away”. (2013 p. 151). Subtraction in this Unit is an act of taking some away from a total, naming the missing part, and comparing or determining the difference between two quantities. Students build meaning by exploring the idea that subtraction is also taking apart or separating groups. Subtraction can be thought of as an unknown addend problem rather than just counting what is left. This Unit builds the relationship between addition and subtraction. The different problem types are addressed in Table 1. Common addition and subtraction situations (NVACS, 2010, p. 88). They are also shown in the K-5 Progression on Counting and Cardinality and Operations and Algebraic Thinking (linked above, p. 9), which highlights the problem types appropriate for kindergarten development. Support student learning by developing understanding of the different problem types and watching for the multiple strategies that may be used to solve story problems (see the chart on p. iii in the Unit 8 Introduction). Students also revisit measurement of length emphasizing estimation, measurement, and comparison, along with exploring ideas in future standards when counting by twos, and revisiting money for counting.

As another transition to 1st grade, consider introducing the Work Place Folders and the Work Place Logs for student use during Work Places if not previously introduced. Students will use these folders and logs in 1st grade to promote self-regulation, self-directed learning, choice, and accountability. Work Place Folder explanations are found in your Unit 1 binder under Module 2 Session 4 (p. 16). The Work Place Log for Unit 8 is located in the Unit 8 binder under Module 1 Teacher Masters p. T4.

The New Mathematics Content of Unit 8

Children construct understandings in connected and integrated ways, not as isolated, individual pieces. Therefore, continually ask students to explain how they are problem solving (“How did you know?”, “What made you think that?”, etc.) so you can make explicit the connections students are already making from previous learning, strengthen the synaptic connections being constructed, and encourage the continuance of this sense-making behavior (NVACS, 2010, p. 6).

- Support and instruct to the development of the new big mathematical ideas of:
• Representing and solving addition and subtraction problems with objects, drawings or equations
• Combinations within 10
• Using the ten-structure (10 and some more 1s)
• Place determines value

Watch for students’ attempts at thinking about and using these new strategic behaviors/strategies to demonstrate their emerging understandings of the big mathematical ideas:
• Fluency
• Seeing and using patterns
• Multiple ways for representing and solving story problems

Over time, with supportive and scaffolded instruction and interactions students will be able to:
• employ more efficient and effective use of strategies leading to and confirming deeper and more expanded understandings of numbers and place value;
• gain a more precise understanding of comparing, estimating, and measuring;
• demonstrate appropriate precision with mathematics content and vocabulary; and
• flexibly explain and represent solutions to addition and subtraction problems.

Intentionality with the context and range of numbers students work with in mathematics supports and drives this development.

On-going Enrichment:
• Take note of the Skills Across the Grade Level chart in the Introduction section to each Unit. This chart shows the extent and expectation of the development of Standards within the Unit (ex: Unit 8, p. iv-v), and within which other Units and Number Corner Workouts the Standards continues to be taught across the year. This information will also support your professional decision-making within the Unit for instruction, intensification, and intervention.
• Expect all students to engage in the problem solving and in explaining and justifying their thinking
• Use Table 1 in the Nevada Academic Content Standards (NVACS) titled “Common addition and subtraction situations” (p. 88) to think about intensification and acceleration.

<table>
<thead>
<tr>
<th>Essential Academic Vocabulary:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Note: Use these words consistently during instruction to begin to develop understanding.</td>
</tr>
<tr>
<td>*indicates Word Resource Cards are available in the Bridges materials</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reasonable Fact family*</th>
<th>From previous Units and/or Number Corner</th>
<th>Behind</th>
</tr>
</thead>
<tbody>
<tr>
<td>One*, two, three, four, five…</td>
<td>Below*</td>
<td>Curved/straight</td>
</tr>
<tr>
<td>Six, seven, eight, nine, ten</td>
<td>In front of</td>
<td>Pyramid*</td>
</tr>
<tr>
<td>Zero</td>
<td>Inside/outside</td>
<td>Rectangular prism*</td>
</tr>
<tr>
<td>Numeral</td>
<td>Line</td>
<td>Triangular prism *</td>
</tr>
<tr>
<td>Number*</td>
<td>Circle</td>
<td>Measure</td>
</tr>
<tr>
<td>Count</td>
<td>triangle</td>
<td>Length*</td>
</tr>
<tr>
<td>Backward/forward</td>
<td>Square*</td>
<td>height</td>
</tr>
<tr>
<td>Count on*</td>
<td>Rectangle*</td>
<td>Longer than/shorter than</td>
</tr>
<tr>
<td>Digit</td>
<td>Hexagon*</td>
<td>Long/longer/longest</td>
</tr>
<tr>
<td>Double</td>
<td>Rhombus*</td>
<td>Short/shorter/shortest</td>
</tr>
<tr>
<td>Even/odd</td>
<td>Trapezoid*</td>
<td>Heavy/heavier/heaviest*</td>
</tr>
<tr>
<td>Five-frame/Ten-frame</td>
<td>Vertex or Corner*</td>
<td>Light/lighter/lightest*</td>
</tr>
<tr>
<td>Ones/tens*</td>
<td>Shape/shapes</td>
<td>Weight*</td>
</tr>
<tr>
<td>Less than*/greater than*</td>
<td>Side*</td>
<td>The same</td>
</tr>
<tr>
<td>Tally</td>
<td>Flat</td>
<td>Actual</td>
</tr>
<tr>
<td>Equal*</td>
<td>Round</td>
<td>Row*</td>
</tr>
<tr>
<td>Equation*</td>
<td>Solid</td>
<td>Half*</td>
</tr>
<tr>
<td>Plus/minus</td>
<td>Shape*</td>
<td>Horizontal</td>
</tr>
<tr>
<td>Symbol</td>
<td>Cone*</td>
<td>Create</td>
</tr>
<tr>
<td>Subtraction</td>
<td>Cube*</td>
<td>Pattern*</td>
</tr>
<tr>
<td>Subtract*</td>
<td>Cylinder*</td>
<td>Repeating pattern</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Extend</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cent*</td>
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<tr>
<td></td>
<td></td>
<td>Nickel*</td>
</tr>
</tbody>
</table>
### Module 1 - Session 1: Bug Catchers

<table>
<thead>
<tr>
<th>NVACS (Content and Practices)</th>
<th>Big Idea Mathematical Development</th>
<th>Instructional Clarifications &amp; Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>K.CC.2</td>
<td>Access Prior Learning and Connections to Future Learning: Represent subtraction with objects and equations is reinforced from Units 3, 4, &amp; 7.</td>
<td>Guiding Questions: How can I find what is left over when I take one quantity from another? How did you separate the bugs from the original set?</td>
</tr>
<tr>
<td>K.CC.3</td>
<td>Working with the Big Idea and key Strategic Behaviors Developing: Combination of within 10 and composing and decomposing.</td>
<td>Instructional Notes: Visual models are number to ten counting mat visuals and cubes; Consider using plastic bugs instead of cubes, especially for ELs, if available; To build the more precise understanding of subtraction as referenced above, consider having a separate clear container (plastic cup or basket) to hold the bugs when removing them from the original set. Students then see the group separated from rather than the group disappearing.</td>
</tr>
<tr>
<td>K.OA.1</td>
<td>Secure: Subitizing, using the five-structure.</td>
<td>Number Corner Connection: Represent subtraction with objects and equations is expected to be mastered in this Unit. It was introduced/developed in Dec-May.</td>
</tr>
<tr>
<td>K.OA.2</td>
<td>Literature Connections: Elevator Magic by Stuart Murphy, The Icky Bug by Vicki Bachman, Ten Flashing Fireflies by Philemon Sturgess (recommended in previous Sessions for addition, now you can also use it for subtraction).</td>
<td>Writing and Enrichment: Consider having students write equations based on one of the read alouds.</td>
</tr>
<tr>
<td>K.OA.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>K.OA.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>K.OA.5</td>
<td></td>
<td></td>
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<tr>
<td>MP.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MP.4</td>
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<td></td>
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<tr>
<td><strong>Additional terminology that students may need support with:</strong> Strategies, test, Venn Diagram, size, color, sort.</td>
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</tr>
</tbody>
</table>

### Module 1: Session 2: Introducing Work Place 8A Bug Catchers

<table>
<thead>
<tr>
<th>NVACS (Content and Practices)</th>
<th>Big Idea Mathematical Development</th>
<th>Instructional Clarifications &amp; Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>K.CC.2</td>
<td>Access Prior Learning and Connections to Future Learning: Represent subtraction with objects and equations is reinforced from Units 3, 4, &amp; 7.</td>
<td>Guiding Questions: What action indicates that we are subtracting? Why? How can I find what is left over when I take one quantity from another? How did you separate the bugs from the original set?</td>
</tr>
<tr>
<td>K.CC.3</td>
<td>Working with the Big Idea and key Strategic Behaviors Developing: Combination of within 10 and composing and decomposing.</td>
<td>Instructional Notes: Visual model are cubes, student drawings, ten-frame counting mats, and equation recording sheet.</td>
</tr>
<tr>
<td>K.OA.1</td>
<td>Secure: Subitizing, using the five-structure.</td>
<td>Optional Unit 8 Work Place Log available on p. T4. You might consider using this log at this time as a transition to 1st grade, if you have not been using them this year in kindergarten.</td>
</tr>
<tr>
<td>K.OA.2</td>
<td></td>
<td>Number Corner Connections: Represent subtraction with objects and equations is expected to be mastered in this Unit. It was introduced/developed in Dec-May.</td>
</tr>
<tr>
<td>K.OA.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>K.OA.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>K.OA.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MP.1</td>
<td></td>
<td></td>
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<tr>
<td>MP.4</td>
<td></td>
<td></td>
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<tr>
<td>MP.8</td>
<td></td>
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</tr>
</tbody>
</table>

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## Module 1 - Session 3: Piggy Bank Subtraction

**Access Prior Learning and Connections to Future Learning:**
- Represent subtraction with objects and equations is reinforced from Units 3, 4, & 7.
- Fluently subtract minuends to 5 is only in Unit 8; subtraction fluency.

**Guiding Questions:**
- How is the Piggy Bank game similar to Bugs and Bug Catchers? How can I model subtraction using my finger? Is counting backward a good strategy for subtraction? Why or why not?

**Instructional Notes:**
- Visual models are pennies, ten-frame counting mats, written equations, and number and dot spinners
- Consider using a small piggy bank, coffee can, milk carton, plastic cup, potato chip can, etc. to enhance the auditory to kinesthetic connection

**Number Corner Connection:**
- Represent subtraction with objects and equations is expected to be mastered in this Unit. It was introduced/developed in Dec-May.
- Fluently subtract minuends to 5 is expected to be mastered. It is covered in Jan-May.

**Literature Connections:**
- *The Penny Pot* by Stuart Murphy

**Number Corner Connections:**

**Writing and Enrichment:**
- Consider having students think of something they would like to buy and write a story problem in a journal or on paper

### Accessing Prior Learning and Key Strategic Behaviors

**Secure:**
- subitizing
- using the five-structure

**Developing:**
- combination of within 10
- composing and decomposing

## Module 1 - Session 4: Introducing Work Place 8B Piggy Bank Subtraction

**Access Prior Learning and Connections to Future Learning:**
- Represent subtraction with objects and equations is reinforced from Units 3, 4, & 7.
- Fluently subtract minuends to 5 is only in Unit 8; subtraction fluency.

**Guiding Questions:**
- How is the Piggy Bank game similar to Bugs and Bug Catchers? How can I model subtraction using my finger? Is counting backward a good strategy for subtraction? Why or why not?

**Instructional Notes:**
- Visual models are pennies, ten-frame counting mats, written equations, and number and dot spinners

**Number Corner Connections:**
- Represent subtraction with objects and equations is expected to be mastered in this Unit. It was introduced/developed in Dec-May.
- Fluently subtract minuends to 5 is expected to be mastered. It is covered in Jan-May.

**Writing and Enrichment:**
- See Teacher Masters (p. T5) of the Work Place Guides for Differentiation ideas

**Number Corner Connections:**

**Writing and Enrichment:**
- Consider having students think of something they would like to buy and write a story problem in a journal or on paper

### Accessing Prior Learning and Key Strategic Behaviors

**Secure:**
- subitizing
- using the five-structure

**Developing:**
- combination of within 10
- composing and decomposing

## Module 1 - Session 5: Introducing Work Place 8C Count & Compare Bugs

**Access Prior Learning and Connections to Future Learning:**
- Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group reinforced from all Units.
- Use an equation to represent any number from 11 to 19 as the sum of 10 and some more ones was also covered in Unit 7.

**Guiding Questions:**
- How can I model subtraction using my finger? Is counting backward a good strategy for subtraction? Why or why not?

**Instructional Notes:**
- Visual models are cubes, double ten-frame dot cards and written equations using <, >, =
- Consider using a small piggy bank, coffee can, milk carton, plastic cup, potato chip can, etc. to enhance the auditory to kinesthetic connection

**Number Corner Connections:**
- Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group is reinforced/extended in this lesson. It is covered in Oct, Dec, Jan, Apr, Mar, Apr, and May.
- Use an equation to represent any number from 11 to 19 as the sum of 10 and some more ones is expected to be mastered. It is covered in Mar and April.

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## Module 2- Session 1: Frog Jump Measuring

<table>
<thead>
<tr>
<th>Access Prior Learning and Connections to Future Learning:</th>
<th>Guiding Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Describe the length of an object, directly compare the lengths of two objects, and describe the difference between their lengths are all reinforced/extended from Unit 4.</td>
<td>- Which jump is longer or shorter? How do you know? What tool did you use to compare the jumps? Is placing the sticks end to end important? Why?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Working with the Big Idea and key Strategic Behaviors:</th>
<th>Instructional Notes:</th>
<th>Number Corner Connection:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- measuring with non-standard measures</td>
<td>- Visual models are physical jumps marked by masking tape, and craft sticks</td>
<td>- Describe the length of an object concept is reinforced/extended. It was a focus in Nov. Directly compare the lengths of two objects, and describe the difference between their lengths. It was a focus in Nov.</td>
</tr>
<tr>
<td>- estimating</td>
<td>- Consider using pictures of frogs and a short video of how frogs jump, to support language ELs</td>
<td></td>
</tr>
<tr>
<td>- comparing</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Literature Connections:

- Jump Frog Jump by Robert Kalan (As a math/science connection activity: Teacher/student is holding a playground ball with a bean bag frog balancing on it’s top edge. With children in a circle, say, "Jump, frog, jump" and the students “drop”. Teacher lets the ball drop (for this to work you must hold arms out straight and let ball fall). Frog will "jump"! Children can try to catch the frog. |

- Frog songs and rhymes available p. T6, T7, and T8

### Writing and Enrichment:

- See Teacher Masters (p. T8) of the Work Place Guides for Differentiation ideas
- See Work Place Instructions (p. T10) for game variations
- Home Connection p. 23 and Home Connection tab p. 199-200

### Child Watching and Assessment:

- BUG CATCHER CHECKPOINT – observe 4 students (see p. 22 and T12 ). Also see scoring and reteaching suggestion in the Assessment Binder, Bridges Unit Assessments tab p. 88-89.

## Module 2- Session 2: Introducing Work Place 8D Frog Jump Measuring

<table>
<thead>
<tr>
<th>Access Prior Learning and Connections to Future Learning:</th>
<th>Guiding Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Describe the length of an object, directly compare the lengths of two objects, and describe the difference between their lengths are all reinforced/extended from Unit 4.</td>
<td>- Which jump is longer or shorter? How do you know? What tool did you use to compare the jumps? Is placing the sticks end to end important? Why?</td>
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<table>
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<tr>
<th>Working with the Big Idea and key Strategic Behaviors:</th>
<th>Instructional Notes:</th>
<th>Number Corner Connection:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- measuring with non-standard measures</td>
<td>- Visual models are physical jumps marked by masking tape, and craft sticks</td>
<td>- Describe the length of an object concept is reinforced/extended. It was a focus in Nov. Directly compare the lengths of two objects, and describe the difference between their lengths. It was a focus in Nov.</td>
</tr>
<tr>
<td>- estimating</td>
<td>- Consider having students measure a variety of objects with other measurement tools such as cubes, paper clips, links, etc.</td>
<td></td>
</tr>
<tr>
<td>- comparing</td>
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</tr>
</tbody>
</table>

### Literature Connections:

- Ready, Set, Hop by Stuart Murphy

### Writing and Enrichment:

- See Teacher Masters (p. T1) of the Work Place Guides for Differentiation ideas
- See Work Place Instructions (p. T2) for game variations
- Home Connection p. 10 and Home Connection tab pp. 201-202

## Module 2- Session 3: Frog Eyes – Counting by Twos (optional)

<table>
<thead>
<tr>
<th>Access Prior Learning and Connections to Future Learning:</th>
<th>Instructional Notes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Count forward from a given number, rather than starting at 1 is a skill being reinforced/extended.</td>
<td>- Optional lesson – this Session can also be used as additional A/D/E day as needed</td>
</tr>
<tr>
<td>- Working with equal groups of objects by pairing objects or counting them by 2s problem</td>
<td>- Visual models are triangular pattern made with constructed frogs with 2 eyes, number cards, and counting by twos mystery numbers charts</td>
</tr>
</tbody>
</table>

### -continues on next page-
| MP.8 | type is not mastered until second grade. |  |
| Working with the Big Idea and key Strategic Behaviors |  |
| Developing: |  |
| • repeated patterns |  |
| • skip counting by 2s |  |
| • graphing |  |

**Module 2- Session 4: Unifix Cube Measuring**

| K.CC.1 | Access Prior Learning and Connections to Future Learning:  |
| K.CC.3 | • Counting by ones and tens to 100 was also in Unit 7.  |
| K.OA.1 |  |
| K.OA.2 | Working with the Big Idea and key Strategic Behaviors |  |
| K.NBT.1 | Developing:  |
| | • writing equations |  |
| | Secure:  |
| | • measuring with non-standard measures |  |
| | • estimating |  |
| | • comparing |  |
| | • counting by 10s and 1s |  |

**Guiding Questions:**
- What strategies can we use to count the cubes quickly or efficiently? Is there more than one way?

**Instructional Notes:**
- Visual models are cubes into ten-trains, classmates and other objects, and written equations
- Note SUPPORT ideas on p. 17 for common misconceptions

**Number Corner Connection:**
- Count to 100 by 10s is expected to be mastered. It is addressed in Oct, Dec, Feb, Mar, Apr, & May.

**Writing and Enrichment:**
- See Teacher Masters (p. T9) of the Work Place Guides for Differentiation ideas
- See Work Place Instructions (p. T10) for game variations
- Consider having students make trains of 5 and count by 5s if counting by 1s and 10s is secure and if this Work Place skill is fluent

**Module 2- Session 5: Make It Ten**

| K.CC.3 | Access Prior Learning and Connections to Future Learning:  |
| K.OA.3 | • Decompose numbers less than or equal to 10 in pairs more than one way and record is reinforced from all units.  |
| K.OA.4 |  |
| MP.1 | Working with the Big Idea and key Strategic Behaviors |  |
| MP.2 | Developing:  |
| MP.8 | • combinations within 10 |  |
| | • writing equations |  |
| | Secure:  |
| | • three-dimensional shapes |  |

**Instructional Notes:**
- Visual models are cubes, ten-frames, and written equations

**Literature Connections:**
- 12 Ways to Get to 11 by Eve Merriam
- Domino Addition by Lynette Long

**Number Corner Connections:**
- Decompose numbers less than or equal to 10 in pairs more than one way and record is expected to be mastered. It is covered in all Oct-May

**Writing and Enrichment:**
- Consider replacing this Session replaying Beat You To Ten (Unit 2, M3, S6 p. T8) focusing on the game variation suggestion for writing addition and subtraction equations.
- Consider modifying this Session by using the first Home Connection separate, change unknown problem (p. 203) as a class problem solving opportunity rather than teaching and playing Make It Ten
- Home Connection p. 23 and Home Connection tab pp. 203-204

**Module 3- Session 1: Place Value Build & Win**

| K.CC.5 | Access Prior Learning and Connections to Future Learning:  |
| K.CC.6 | • Count up to 20 objects arranged in a line, rectangular array or circle to answer “how many?” is reinforced from Units 4 & 6.  |
| K.CC.7 | • Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group is reinforced/extended from all Units.  |
| K.NBT.1 | • Count up to 20 objects |  |
| MP.1 | • Compose and decompose numbers from 11 to 19 into |  |

**Guiding Questions:**
- What is an efficient strategy for counting number in the teens? How is your strategy the same or different from your partner’s? What is the difference between a group of 10 and the left overs?

**Instructional Notes:**
- Visual models are ten-trains of cubes, place value mats, written < > expressions, and ten & more numeral display cards
- Recommend if you skipped P&I in M2, S3 replace Step 1 (warm-up) with counting by 10s instead of counting by 2s
- Note SUPPORT suggestion on p. 5 for addressing confusion over 10s and 1s. Clarification – Student have difficulty with ten as a singular word that means 10 things. Take advantage of the Word Resource Cards for “one”, “ones”, and “tens” to provide picture support. Also make connections to the Days in School Number Corner routine with the ten-frames/dots.

-continues on next page-
**Bridges in Mathematics   - Kindergarten Unit 8**

**Working with the Big Idea and key Strategic Behaviors Developing:**
- using the ten-structure
- combinations of 10 and some more 1s
- place determines value
- comparing written numbers using < > greater than 10

**Number Corner Connections:**
- Reviewed or extended to higher levels - Count up to 20 objects arranged in a line, rectangular array or circle to answer how many. Covered in Feb, Mar, & Apr.
- Expected to be mastered - Compose and decompose numbers from 11 to 19 into tens and ones. Covered in Dec, Mar & Apr. Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group is reinforced/extended in this lesson. It is covered in Oct, Dec, Jan, Apr, Mar, Apr, and May.

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**Module 3- Session 2: One More Than, One Less Than**

<table>
<thead>
<tr>
<th>K.CC.2</th>
<th>K.CC.4c</th>
<th>K.OA.2</th>
<th>K.NBT.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>MP.1</td>
<td>MP.2</td>
<td>MP.8</td>
<td></td>
</tr>
</tbody>
</table>

**Access Prior Learning and Connections to Future Learning:**
- Count up to 20 objects arranged in a line, rectangular array or circle to answer “how many?” is reinforced from Units 4 & 6.
- Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group is reinforced/extended from all Units.
- Compose and decompose numbers from 11 to 19 into tens and ones was also covered in Unit 6.

**Guiding Questions:**
- What is the difference between more and less? How are these numbers related? (e.g. How is six related to five? "6 is one more than 5." "Six is composed of 5 and 1." "Six is one more away from zero than five." etc.)

**Instructional Notes:**
- Visual models are ten-frame dot cards, double ten-frame dot cards, and number line
- Recommend if you skipped P&I in M2, S3 replace Step 1 (warm-up) with counting backwards by 10s instead of counting by 2s

**Number Corner Connections:**
- Reviewed or extended to higher levels - Count up to 20 objects arranged in a line, rectangular array or circle to answer how many. Covered in Feb, Mar, & Apr.
- Expected to be mastered - Compose and decompose numbers from 11 to 19 into tens and ones. Covered in Dec, Mar & Apr. Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group is reinforced/extended in this lesson. It is covered in Oct, Dec, Jan, Apr, Mar, Apr, and May.

**Writing and Enrichment:**
- Home Connection p. 10 and Home Connection tab pp. 205-206

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**Module 3- Session 3: Two More Than, Two Less Than**

<table>
<thead>
<tr>
<th>K.CC.2</th>
<th>K.OA.2</th>
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<tbody>
<tr>
<td>MP.1</td>
<td>MP.2</td>
<td>MP.8</td>
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</tbody>
</table>

**Access Prior Learning and Connections to Future Learning:**
- Count up to 20 objects arranged in a line, rectangular array or circle to answer “how many?” is reinforced from Units 4 & 6.
- Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group is reinforced/extended from all Units.
- Compose and decompose numbers from 11 to 19 into tens and ones was also covered in Unit 6.

**Guiding Questions:**
- What is the difference between more and less? How are these numbers related? (e.g. How is six related to four?)

**Instructional Notes:**
- Visual models are ten-frame dot cards, double ten-frame dot cards, and number line
- Recommend if you skipped P&I in M2, S3 replace Step 1 (warm-up) with counting round the oval by 10s instead of counting by 2s
- Digital display tool link (p. 2): [https://bridges.mathlearningcenter.org/digital-materials/session-3-two-more-two-less](https://bridges.mathlearningcenter.org/digital-materials/session-3-two-more-two-less)

**Number Corner Connections:**
- Reviewed or extended to higher levels - Count up to 20 objects arranged in a line, rectangular array or circle to answer how many. Covered in Feb, Mar, & Apr.
- Expected to be mastered - Compose and decompose numbers from 11 to 19 into tens and ones. Covered in Dec, Mar & Apr. Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group is reinforced/extended in this lesson. It is covered in Oct, Dec, Jan, Apr, Mar, Apr, and May.

-continues on next page-
Module 3- Session 4: Count & Compare Bugs Checkpoint

K.CC.6 K.NBT.1 MP.1 MP.2 MP.8

Access Prior Learning and Connections to Future Learning:
- What games do you play at home? What do you already know about 5?

Working with the Big Idea and key Strategic Behaviors
Developing:
- using the ten-structure
- combinations of 10 and some more 1s
- comparing written numbers using < > greater than 10
- writing equations

Guiding Questions:
- Can you find out what is more or less without counting? With counting?

Instructional Notes:
- Visual models cubes, double ten-frame dot cards, < >, and written equations
- Digital display tool link: https://bridges.mathlearningcenter.org/digital-materials/session-5-race-you-30

Writing and Enrichment:
- Home Connection p. 21 and Home Connection tab pp. 207-208

Module 3- Session 5: Race You to 30 cents

K.CC.6 K.OA.3 K.OA.4 K.NBT.1 MP.1 MP.7 MP.8

Access Prior Learning and Connections to Future Learning:
- The counting on strategy is emphasized in this game. However, counting on as a strategy is a grade 1 standard: 1.OA.C.6
- 10 can be thought of as a bundle of ten ones — called a “ten” is for exposure only as it is a Grade 1 Standard.

Working with the Big Idea and key Strategic Behaviors
Developing:
- combinations within 10
- combinations of 10 and some more 1s
- using the ten-structure

Instructional Notes:
- Visual models are pennies and dimes
- Recommend if you skipped P&I in M2, S3 replace Step 1 (warm-up) with counting in a different way by 10s instead of counting by 2s
- Consider giving all students real pennies and dimes and then grouping in different ways to practice counting to and by 10
- Counting on is an advanced method (Level 2) because students apply an abstract principle: the understanding that a counting word represents a group of objects that are added and addends become embedded within the total (OA Progressions, p. 5).
- Digital display tool link: https://bridges.mathlearningcenter.org/digital-materials/session-5-race-you-30

Writing and Enrichment:
- Home Connection p. 21 and Home Connection tab pp. 207-208

Module 4- Session 1: Where Do You See It?

K.CC.3 K.CC.5 K.OA.2 K.OA.3 K.OA.4 MP.1 MP.2 MP.4

Access Prior Learning and Connections to Future Learning:
- Decompose numbers less than or equal to 10 into pairs in more than one way and record is reinforced from all units except Unit 4.
- Represent addition with acting out situations, drawings, and questions is reinforced from Units 2, 3, 4, & 7.

Number Corner Connections:
- Expected to be mastered - Decompose numbers less than or equal to 10 into pairs into more than one way and record. Covered in all months except Sept. Represent addition with acting out situations, drawings, and questions. Covered in Dec-May.

Instructional Notes:
- Visual models are ten-frame five-wise display cards, fingers, and written equations

Writing and Enrichment:
- Consider having students write a story problem to match an equation from their Student Book pp. 37-38.

-continues on next page-
### Module 4- Session 2: Show Me

**K.OA.1**
**K.OA.2**
**K.OA.3**
**MP.1**
**MP.4**
**MP.7**

**Access Prior Learning and Connections to Future Learning:**
- Decompose numbers less than or equal to 10 into pairs in more than one way and record is reinforced from all units except Unit 4.
- Represent addition with acting out situations, drawings, and questions is reinforced from Units 2, 3, 4, & 7.

**Working with the Big Idea and key Strategic Behaviors**
- combinations within 10
- equivalence
- composing and decomposing within 10

**Guiding Questions:**
- Does the order of addends change the total? How can I use models to represent addition? Does where I put the cubes change the total?

**Instructional Notes:**
- Visual models are written equations, cubes, ten-frame pair-wise display cards, counting mat visual, and the number rack
- Make explicit connections to the number rack work from yesterday
- To increase student engagement, consider having students choose a manipulative (at least 5 two-color counters each, or 10 cubes of two colors, or a number rack); have students represent as many different combinations of 5 as they can; as the students explain their thinking/combinations with the class the teacher records the student equations and asks questions to drive student exploration to many possibilities for recording equations (5 = 4+1; 5 = 1+4; 1 = 5-4; 4 = 5-1; 4+1 = 5; 1+4 = 5; 5-4 = 1; 5-1 = 4)

**Guiding Questions:**
- How do you know if you have found all the ways to make equations to show the relationships between 4, 1, and 5?

**Instructional Notes:**
- Please consider making this an exploration rather than a teacher directed lesson.
- Make explicit connections to the number rack work from yesterday
- To increase student engagement, consider having students choose a manipulative (at least 5 two-color counters each, or 10 cubes of two colors, or a number rack); have students represent as many different combinations of 5 as they can; as the students explain their thinking/combinations with the class the teacher records the student equations and asks questions to drive student exploration to many possibilities for recording equations (5 = 4+1; 5 = 1+4; 1 = 5-4; 4 = 5-1; 4+1 = 5; 1+4 = 5; 5-4 = 1; 5-1 = 4)

**Writing and Enrichment:**
- Home Connection p. 11 and Home Connection tab pp. 209-210

### Module 4- Session 3: Fact Families (optional)

**K.OA.1**
**K.OA.3**
**K.OA.5**
**1.OA.C.6**
**MP.1**
**MP.2**
**MP.3**
**MP.8**

**Access Prior Learning and Connections to Future Learning:**
- Using the relationship between addition and subtraction (e.g., knowing that 8 + 4 = 12, one knows 12 - 8 = 4) and analyzing fact families is a first grade standard. This session is for exposure only.

**Working with the Big Idea and key Strategic Behaviors**
- writing equations
- Secure: fluency with combinations to 5

**Guiding Questions:**
- How do you know if you have found all the ways to make equations to show the relationships between 4, 1, and 5?

**Instructional Notes:**
- Visual models are written equations, two-color counters, cubes, and number rack (five-frame display cards are in the original Session interactions)
- To increase student engagement, consider having students choose a manipulative (at least 5 two-color counters each, or 10 cubes of two colors, or a number rack); have students represent as many different combinations of 5 as they can; as the students explain their thinking/combinations with the class the teacher records the student equations and asks questions to drive student exploration to many possibilities for recording equations (5 = 4+1; 5 = 1+4; 1 = 5-4; 4 = 5-1; 4+1 = 5; 1+4 = 5; 5-4 = 1; 5-1 = 4)

**Writing and Enrichment:**
- Home Connection p. 26 and Home Connection tab p. 211-212

### Module 4- Session 4: Double Irish Chain Frog Quilt, Part 1 (optional)

**K.CC.5**
**MP.6**

**Access Prior Learning and Connections to Future Learning:**

**Working with the Big Idea and key Strategic Behaviors:**
- patterns

**Guiding Questions:**
- How can we extend a pattern we already see?

**Instructional Notes:**
- OPTIONAL SESSION – days can be used as additional A/D/E days as needed
- Visual model is the quilt squares and completed quilt

### Module 4- Session 5: Double Irish Chain Frog Quilt, Part 2 (optional)

**MP.6**
**MP.7**

**Access Prior Learning and Connections to Future Learning:**

**Working with the Big Idea and key Strategic Behaviors:**
- patterns

**Guiding Questions:**
- How can we extend a pattern we already see?

**Instructional Notes:**
- OPTIONAL SESSION – days can be used as additional A/D/E days as needed
- Visual model is the quilt squares and completed quilt

**Writing and Enrichment:**
- Home Connection p. 26 and Home Connection tab p. 211-212
References


